

2012

Rational choice and moral intent in the responsible conduct of research

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Rational choice and moral intent in the responsible conduct of research

by

Anita M. Gordon

A dissertation submitted to the graduate faculty
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

Major: Education

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2012

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Acknowledgements

I would like to extend my sincere gratitude to Dr. Stephen Porter for his efforts in guiding me to conduct a strong and worthwhile research study, even after leaving the university and moving 1,500 miles away. His commitment to quality and integrity, and his patient understanding, have been key to my success, both in class and with the dissertation.

I would also like to thank other members of my committee and of my graduate program for their assistance and support in this great adventure. Dr. Larry Ebbers provided the welcome and the ongoing instrumental support that I and so many others have needed to succeed in the program. Dr. Mack Shelley and Dr. Linda Hagedorn provided useful advice and thoughtful criticism at important points in the process. And Christy Twait, my colleague and co-conspirator, offered the encouragement and inspiration without which I would not have actually pursued doctoral studies.

I am especially grateful to the National Science Foundation for providing the funds to support my study. The doctoral dissertation grant allowed a much stronger design than otherwise would have been possible.

Finally, I would like to express my deepest appreciation to Dr. Clark Wolf, Professor of Philosophy and all-around smart guy, for his consistent, kind, and unwavering support since my first unannounced visit to his office four years ago. In teaching by asking questions, and consistently communicating care and concern, he has made this experience the fun and fascinating journey I had hoped it would be.

Abstract

Academic misconduct among students has been the focus of a tremendous amount of literature for a number of decades (Crown & Spiller, 1998). However, academic misconduct among faculty has received much less empirical attention (Steneck, 2006). This research was designed to contribute to the literature by empirically examining the possible effects of rational and moral judgments on faculty research misconduct, with a focus on the social sciences. The purpose of the study was to explore the application of a particular theory of human behavior – Rational Choice Theory – to the phenomenon of misconduct in research and to do so in the context of the James Rest, et al., moral decision-making framework.

A national survey was conducted involving 2,070 faculty members in sociology and psychology departments from a random sample of research-intensive universities, which resulted in a survey sample of 581 respondents. The relationship between moral assessments and rational choice measures of the perceived likelihood of detection and sanctions was explored using scenarios involving clear or ambiguous research misconduct. Participants rated the likelihood they themselves would take the action described in the scenario under the same circumstances while also rating the moral and rational choice features of the situation. Multiple regression was used to predict the effect of moral and rational choice assessments on the probability of engaging in misconduct. Results showed significant effects for moral judgment as well as potential shame and embarrassment on reducing misconduct, but not for likelihood of detection or external sanctions.

Chapter 1. Introduction

Background and Problem Statement

Academic misconduct among students has been the focus of a tremendous amount of literature for a number of decades (Crown & Spiller, 1998). However, academic misconduct among faculty has received much less empirical attention, in spite of a longstanding interest in the problem within the sciences (Merton, 1942) and a growing national and international interest in scientific accountability, largely driven by sensational media reports of human rights violations and cases of scientific fraud (Marshall, 2000; Peake, 2010). Sociologists and philosophers of science have been discussing research fraud and the normative practice of science at least since the 1800's (Babbage, 1830 (2006)). But it was not until the 1950's that widespread public attention was drawn to human subjects research misconduct, in the wake of the World War II experiments by the Nazis. This gradually evolved in the 1980's and 1990's to a broader emphasis at the federal level on research misconduct beyond the medical field, sparked by Congressional hearings and media reports of notorious cases, leading to federal policies and regulations, research grants, and scholarly conferences (Steneck, 1994; Steneck, 1999, 2006).

The regulations and greater attention at the federal level have led to an exponential growth in scientific integrity and misconduct training at research universities across the country, under the presumption that better education and training in what constitutes research misconduct will serve to prevent or reduce the incidence of it. But is this an educational problem, grounded in a lack of knowledge? Or is it a socio-environmental problem, grounded in modeling of peers and mentors? Is a lapse of individual virtue involved? Or

perhaps sloppy, lax behavior encouraged by a lack of monitoring and enforcement? One author helpfully categorized these various explanations into “individual impurity” of scientists, “institutional impropriety” in university and organizational settings, and a “structural crisis” in science as a whole (Sovacool, 2008). Unfortunately, empirical research to explore which of these explanations might be most helpful in understanding the causes of the problem is limited. According to Steneck (2006, p. 67), “This is where efforts to improve integrity in research need to begin, with the careful study of deviations from professional standards, their causes, and measures that might reasonably be expected to change behavior”.

Purpose of the Study

The purpose of the present study was to explore the application of a particular theory of human behavior – Rational Choice Theory – to the phenomenon of misconduct in research. The role of rational choice in the research process was explored in the context of a moral decision-making framework for explaining research misconduct. The Rest, et al., four-component model for moral decision-making posits that four dimensions are involved in the process: moral awareness/sensitivity, moral judgment/reasoning (where most of the research has been focused), moral intent or motivation (the balancing of moral with other pertinent issues to form an intent to act in one fashion or another), and moral action/behavior/character (Jordan, 2007; Narvaez & Rest, 1995; Rest, Bebeau, & Volker, 1986). Given that not all decisions in conducting research involve a moral component, how does one determine when a moral issue is present? When the situation does involve a moral question, how does one determine what is the best course of action? The present study examined the idea that both moral and rational assessments of the likely consequences of a given course of action play a role in forming an intent regarding how to proceed. The relative importance of moral versus

rational choice factors in determining how to act in more and less serious misconduct situations was also explored. Misconduct was examined in the context of the federal definition of Falsification, Fabrication, and Plagiarism (FFP) as well as the loose category of behaviors known as Questionable Research Practices (QRP).

Limitations and Delimitations

This study was designed to focus on tenured and tenure track faculty and thus may not directly contribute to our understanding of academic misconduct among students or other groups. It also did not directly address the relationship between funding expectations, conflicts of interest, and other pressures that may be increasing the likelihood of misconduct for some groups.

In addition, response bias may be a concern in the results from this study due to the sensitive nature of the subject matter. The use of scenarios likewise may be seen as a limitation, since assessment of scenarios is a hypothetical thought exercise not involving direct self-reports or observations of misconduct or practice integrity. Thus, the study did not target or measure actual behavior, arguably the ultimate goal of research of this nature. There is consistent but limited evidence to suggest that there is a link between moral judgments and actual behavior (Beck & Ajzen, 1991), and thus caution must be exercised in drawing conclusions about behavior based on the study results.

Finally, it should be noted that the terms “moral” and “ethical” are used interchangeably in the paper, although some scholars would suggest that it could be important to distinguish between them.

Theoretical Frameworks

The theoretical framework for the study was an integrated model involving Rational Choice Theory and the four-component model of moral decision-making. The likelihood of faculty engaging in research misconduct was examined in the context of Rational Choice Theory – the individual’s assessment of the costs and benefits of specific research decisions or actions. Among the costs that were measured was anticipated shame or embarrassment arising from the action, what might be seen as self-imposed potential sanctions, in addition to the perceived certainty and severity of other informal or formal sanctions.

Moral assessments were defined in terms of the four component model of moral decision-making (moral sensitivity, moral judgment, moral intent/motivation, and moral action). In other words, a given individual’s response when confronted with an ethical research decision was hypothesized to be governed in part by the perception that a moral question is involved in the situation as well as a determination that a given course of action is morally right or wrong.

Research Questions

The study examined the following research questions:

1. To what extent do rational choice factors predict the intention to commit research misconduct?
2. To what extent does the awareness of and judgment regarding a moral component predict the intention to commit research misconduct?
3. Are moral sensitivity and judgment associated with rational choice assessments?

4. To what extent is the ambiguity of a given research decision (e.g., QRP versus FFP) associated with the relative importance of moral and rational choice factors in the determining the course of action?

Definitions of Terms

Among the challenges for researchers and regulators alike has been clarity in nomenclature and taxonomy in regard to research misconduct. A variety of terms, definitions, and classifications have been proposed (Pimple, 2002; Sovacool, 2008; Steneck, 1994; Steneck, 2003) but agreement on them has been slow due to the sensitivity and potential impact of the issue. The following definitions are examples of those proposed by federal committees and/or scholars in the field in recent years.

Responsible conduct of research (RCR). RCR is defined by one leading author as “conducting research in ways that fulfill the professional responsibilities of researchers, as defined by their professional organizations, the institutions for which they work, and when relevant, the government and the public” (Steneck, 2006).

Fabrication, falsification, and plagiarism (FFP). As stated in federal regulation, research misconduct means fabrication, falsification, or plagiarism in proposing, performing, or reviewing research or in reporting research results. Fabrication is making up data or results and recording or reporting them. Falsification is manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record. Plagiarism is the appropriation of another person’s ideas, processes, results, or words without giving appropriate credit. Research misconduct does not include honest error or differences of opinion. (USC 42 CFR 93.103)

Questionable research practices (QRP). Questionable research practices are actions that violate traditional values of the research enterprise and that may be detrimental to the research process. Questionable research practices may include a wide variety of activities, such as:

- Failing to retain significant research data for a reasonable period.
- Maintaining inadequate research records, especially for results that are published or are relied on by others.
- Conferring or requesting authorship on the basis of a specialized service or contribution that is not significantly related to the research reported in the paper.
- Refusing to give peers reasonable access to unique research materials or data that support published papers.
- Using inappropriate statistical or other methods of measurement to enhance the significance of research findings.
- Inadequately supervising research subordinates or exploiting them; and
- Misrepresenting speculations as fact or releasing preliminary research results, especially in the public media, without providing sufficient data to allow peers to judge the validity of the results or to reproduce the experiments.

(U.S. National Academies of Science, 1992) (p.6)

Another approach to defining misconduct has been used by DeVries, Martinson, Anderson, and colleagues, which involved asking scientists themselves what they considered to be unethical (De Vries, Anderson, & Martinson, 2006) and using those results to query researchers in subsequent surveys to determine the extent they actually engaged in those behaviors (Martinson, Anderson, & DeVries, 2005; Martinson, Crain, Anderson, & DeVries, 2009). Their focus group research resulted in a list of 33 “misbehaviors”, which was subsequently reviewed by key informants (several university compliance officers) who assisted them in identifying those most likely get a researcher into trouble at the university or

with federal granting agencies (Martinson, Anderson, Crain, & DeVries, 2006). The latter effort resulted in the following “top ten” list of scientific misbehaviors:

- Falsifying or “cooking” research data.
- Ignoring major aspects of human-subjects requirements.
- Not properly disclosing involvement in firms whose products are based on one’s own research.
- Relationships with students, research subjects or clients that may be interpreted as questionable.
- Using another’s ideas without obtaining permission or giving due credit.
- Unauthorized use of confidential information in connection with one’s own research.
- Failing to present data that contradict one’s own previous research.
- Circumventing certain minor aspects of human-subjects requirements (e.g. related to informed consent, confidentiality, etc.).
- Overlooking others’ use of flawed data or questionable interpretation of data.
- Changing the design, methodology or results of a study in response to pressure from a funding source.

(Martinson, et al., 2006, p. 58)

As can be seen, this list represents a mix of the FFP behaviors deemed as most serious by the federal government and some of the QRP behaviors that others have discussed.

John, Loewenstein, and Prelec (2012) used the following QRPs in their prevalence study of academic psychologists: (a) failing to report all dependent measures; (b) collecting more data after seeing whether results were significant; (c) failing to report all conditions; (d) stopping data collection after achieving the desired result; (e) rounding down *p* values; (f) selectively reporting studies that “worked”; (g) excluding data after looking at the impact of doing so; (h) claiming to have predicted an unexpected finding; (i) falsely claiming that results are unaffected by demographics; and (j) falsifying data (the latter not typically considered a QRP, however) (John, Lowenstein, & Prelec, 2012).

Although there has been significant debate regarding which behaviors should be regulated (Guston, 1999), most would likely agree the responsible conduct of research involves careful consideration and avoidance of all of the misbehaviors under discussion. Yet the distinction may be an important one to consider because it is possible that the motivations underlying QRP and FFP are quite different, and thus could require different prevention or intervention approaches.

One final categorization method of value to this discussion is the attempt to organize areas of research integrity, under which types of both responsible conduct and misconduct can be listed. Pimple (2002), for example, suggested the following domains for use in education and research on research integrity and then listed specific practices under each: (a) scientific integrity; (b) collegiality; (c) protection of human subjects; (d) animal welfare; (e) institutional integrity; and (f) social responsibility. Similarly, a detailed taxonomy of research practices was developed by a team of investigators interested in ethical decision-making in scientific research (Helton-Fauth et al., 2003). This taxonomy represents an attempt to list and categorize all of the ethical/unethical events/actions that may pertain to research conduct across fields and domains. The taxonomy has since been further revised to include seven broad dimensions, with three-five subcategories within each: (a) data acquisition, management, sharing and ownership; (b) mentor/trainee responsibilities; (c) publication practices and responsible authorship; (d) peer review; (e) collaborative science; (f) research misconduct; and (g) conflicts of interest and commitment (Michael D. Mumford et al., 2006).

Significance of the Study

Why is the study of research misconduct important? Simply put, research misconduct can harm individuals and institutions, and wastes time and resources. Researchers attempting to replicate or follow-up on the results, departments and institutions, graduate students, and taxpayers are all among those affected by the behavior of a researcher who crosses the line. Professionals and lay people alike may proceed to act on erroneous results of flawed research, putting individuals and communities at risk. Beyond that, when research misconduct becomes known, the public confidence in science is eroded. A lack of public trust in scientific results can have profound consequences for public policy, as was most recently seen in the 1990's when science came under attack for political purposes. Science will never be error-free, but when the etiology of scientific misconduct is better understood, we will be better able to prevent and reduce these types of misbehaviors.

The present study was designed to accomplish several things. First, an attempt was made to apply Rational Choice Theory in a new area. RCT has been examined in a variety of fields and areas, but not in faculty research misconduct. Second, the role that moral perception and intent actually play in research practice was explored. Finally, the role of RCT in moral decision-making, along with the concept of shame as a potential deterrent to misbehavior in academia, was examined.

One of the reasons it is so important to understand what causes research misconduct is that doing so will help identify how to address it. The government has forged ahead into promoting and regulating education as the primary method for reducing the incidence of misconduct without really understanding whether or not the problem lies in a lack of education about ethical practices and standards. Of course ethics education and training can

serve other purposes, such as helping to desensitize participants to the ethical dilemmas they are most likely to encounter in their work and make it easier for them to make a thoughtful decision when the time comes. Some have also suggested that simply providing ethics education on campus makes the issue more visible and the campus community more cognizant of the university's commitment to ethical behavior. But a better understanding of the factors that lead to misconduct will help us target prevention and intervention efforts in a more efficient way. It may also offer guidance to faculty working in the "grey" areas to see a little more clearly and thereby enhance the integrity of research results.

Chapter 2. Review of the Literature

Although books, articles, and reports discussing research misconduct are numerous, empirical research specifically targeting research integrity or misconduct is relatively sparse. With a few notable exceptions described below, incidence and prevalence studies have dominated the literature on this topic to date, along with small-scale studies assessing the effectiveness of research ethics training (Finelli, Szwalek, Carpenter, & Harding, 2005; Kalichman & Friedman, 1992; Plemmons, Brody, & Kalichman, 2006). Calls have been certainly made for more and better research in this area (Iverson & Frankel, 2002; Steneck, 2002).

And yet, although research on research integrity is not extensive, there is a plethora of studies investigating related topics that together provide a rich, interdisciplinary foundation for conducting such research. There is a large body of theoretical and empirical work on crime and deviance, on ethical behavior and misconduct in organizational settings, on moral development and ethical decision-making, and even on academic misconduct by students. The primary literatures are to be found in sociology and criminology, psychology and organizational development, business management and ethics, higher education, and philosophy.

The following review was undertaken to examine and summarize the pertinent knowledge available, in order to launch and contextualize the present study. The following narrative begins with the prevalence of faculty research misconduct to demonstrate the importance of conducting research in this area. This is followed by a discussion of theoretical perspectives that may be brought to bear on research misconduct in academia, and

some of the empirical work that supports those perspectives. Included are brief summations of research identifying correlates for student cheating, moral decision-making and work-related misbehavior. Finally, an integrated discussion of the most relevant literature is offered as the theoretical foundation for the present investigation and its hypotheses.

Prevalence of Research Misconduct

Several studies have attempted to document the incidence and prevalence of faculty research misconduct (Bebeau & Davis, 1996; Martinson, et al., 2006; Martinson, et al., 2009; Ranstam et al., 2000; Swazey, Anderson, & Lewis, 1993; Titus, Wells, & Rhoades, 2008). A meta-analysis of the prevalence studies published to date found that between .3% and 4.9% of scientists have reportedly fabricated or falsified research data (Fanelli, 2009). An average of 33.7% of respondents in these studies also admitted to engaging in other Questionable Research Practices (QRPs).

Of even greater relevance to the present study, (John, et al., 2012) found in a mailed survey that, of 2,155 responding academic psychologists, the mean admission rate across ten QRPs was 36%, with 94% of respondents admitting to having engaged in at least one of the listed behaviors. This study also tested a method for incentivizing respondents to tell the truth by offering to make a donation to charity based on how truthful participant responses were calculated to be, as measured by a scoring algorithm developed by one of the authors. Compared to the experimental group rates noted above, only about 33% of those in the control condition on average reported engaging in the ten QRPs, and 91% of the respondents reported engaging in at least one of them at some point. In a related study (reported in the same article), the authors found that admission rates were lower when respondents were asked to report misbehaviors on a dichotomous scale of Yes or No, compared to a frequency

scale of Never through Often. Finally, there were statistically significant differences between disciplines and types of research within psychology, with the clinical psychologists reporting the lowest average admission rate over the 10 misbehaviors (at 27%) and the social psychologists reporting the highest rates (40%).

Fanelli (2009) found that methodological factors accounted for much of the variance in effect sizes in the available studies, including how misconduct was defined, how the data was collected, and what exactly respondents were being asked to report (e.g., their own behavior versus that of colleagues). For example, *lower rates of misconduct* were found for self- versus non-self-reports, in surveys using the terms “falsification” or “fabrication” versus surveys where those were not mentioned, and in mailed surveys versus those that were handed out. The analysis included studies involving committed and observed instances of misconduct, or both, and all included random sampling. Studies documenting opinions or perceptions of prevalence were not included in the meta-analysis.

Definitions and methodology may have played a role as well in the results from a newly published study of misconduct interventions, in which 84% of the 2,599 funded researchers reported observing at least one case of what they considered scientific error or other misbehavior of one kind or another (Koocher, Keith-Spiegel, Tabachnick, Sieber, & Butler, 2010).

Causes and Solutions for Research Misconduct

An extensive series of empirical studies on research integrity and ethical decision-making has been undertaken by Mumford, Connelly, and colleagues at the University of Oklahoma. Their research has led to the development of a theoretical model referred to as the Ethical Sense-Making Model of ethical decision-making (Antes & Mumford, 2010;

Michael D Mumford, Antes, Beeler, & Caughron, 2009). The Ethical Sense-Making Model suggests that, in various work situations, researchers will consider the possible causes of a given situation, their goals, methods for achieving their goals, and any professional principles that may be involved. All of these considerations serve as the foundation for a framing of the issue at hand as well as the emotions that may be tied to potential outcomes, which will then lead to forecasting of the various responses and outcomes, and eventually to “sense-making” and a decision about what to do. Based on the model, Mumford and colleagues developed several strategies to help scientists make sense and thereby make ethical decisions in various work situations. They tested the model using scenarios created for that purpose and found that many of the sense-making strategies (e.g., recognizing circumstances, seeking help, anticipating consequences, etc.) correlated with the ethical choices made in responding to the scenarios. They also found that field and experience may have an impact due to the fact that more experienced health scientists engaged in less ethical decision-making in the study than those in the social and biological sciences, and interpersonal conflict was negatively correlated with ethical decisions, while occupational engagement was positively correlated with more ethical choices. Certain personality variables contributed to decreased sense-making and ethical decision-making as well, which included arrogance, exploitativeness, and cynicism. This research is detailed in numerous articles (Antes et al., 2009; Michael D Mumford, Antes, et al., 2009; Michael D Mumford et al., 2009; Michael D Mumford et al., 2005; Michael D. Mumford, et al., 2006; Michael D Mumford & Helton, 2002).

In addition to the Mumford team’s work, a variety of prevalence and investigational studies have been undertaken by Anderson, Martinson, De Vries, and colleagues at the University of Minnesota. These studies have largely focused on documenting the nature of

research misconduct, documenting its prevalence, and on investigating organizational effects on research misbehavior (M. S. Anderson, Louis, & Earle, 1994; M. S. Anderson, Ronning, DeVries, & Martinson, 2007; Louis, Holdsworth, Anderson, & Campbell, 2007; Martinson, et al., 2006), as well as education and mentoring in graduate school (M. S. Anderson et al., 2007). Their research has demonstrated that procedural but not distributive justice has a direct effect on research misconduct. In addition, females and mid-career faculty were found to be less likely to engage in misconduct while those in the social sciences were more likely to do so than other scientific fields (Martinson, et al., 2006). In another study (M. S. Anderson, Horn, et al., 2007), the researchers found that while training in research ethics did not appear to reduce misconduct, personal mentoring and mentoring in regard to research and ethics did, at least for early career researchers. Interestingly, mentoring in financial matters and in learning to survive in one's field had the opposite effect on specific types of misconduct, such as use of funds and methodological problems. A focus group with 51 mid- and early-career researchers brought attention to the likely effect of fierce competition for resources on collegiality and integrity in the sciences (M. S. Anderson, Ronning, et al., 2007).

One existing theory that has been applied specifically to research misconduct is Routine Activity Theory (RAT) (Adams & Pimple, 2004, 2005). This theory originated in the late 1970's (Cohen & Felson, 1979) and represents a shift from focusing exclusively on the offenders to an emphasis on the circumstances of the offense. Crime is seen in part as a function of (a) target suitability, in terms of value, visibility, and access; and (b) the presence of guardians who prevent crime and protect potential victims and/or handlers and managers, who monitor crime in specific settings. Applying this to research misconduct, Adams and

Pimple (2004, 2005) have suggested that peer and immediate supervisor monitoring and support can prevent misconduct, as they do in the management of police officers. One major advantage of this approach is that crime can be decreased even without reducing the number of people likely to commit the crimes (Tillyer, 2011). It is also attractive in the realm of science and academia because of its emphasis on peer networks, which may be of great help in either prevention or low-level intervention in misconduct situations (M. S. Anderson, Horn, et al., 2007; Keith-Spiegel, Sieber, & Koocher, 2010; Michael D Mumford & Helton, 2002). Given that Routine Activity Theory is a victim-oriented model, however, (Seipel & Eifler, 2010), there are some aspects of it that do not seem to be a good fit for faculty misconduct.

Moral Decision-Making

James Rest and colleagues developed a four-component model of moral decision-making as an outgrowth of the theoretical work of Lawrence Kohlberg on moral development (Narvaez & Rest, 1995; Rest, 1984; Rest, et al., 1986; Rest & Narvaez, 1994; Rest, Narvaez, & Thoma, 1999; Rest, Thoma, & Edwards, 1997; Thoma, 1994). The model involves the internal psycho-social-cognitive processes thought to be at work in regard to moral reasoning and actions. These four components weave together cognition and emotion, and should not be seen as personality traits or virtues (Rest, et al., 1986). Different terms have been used by them and other authors at different points, but the four components essentially involve the following:

1. Moral awareness or sensitivity (most often referred to as the latter), which involves the individual assessing and interpreting a given situation, whether a moral issue is present, and how various actions might affect others and themselves.

2. Moral judgment or reasoning, the component most studied by researchers, described as the individual identifying what the moral course of action is in the situation and thus what one ought to do.
3. Moral motivation, which is developing an intention to take the moral action, by prioritizing the moral values involved over other personal values the individual has identified to be at play in the situation.
4. Moral character or action, involving the actual execution of the moral action selected. The latter was referred to in early publications as “implementation” of the plan, but seems to later more often be referred to as the “character” component, because it involves having the wherewithal to carry out the action. The latter means having the skills, perseverance, and commitment to take the necessary steps in spite of obstacles that arise, otherwise defined as “ego strength” (Rest, 1984; Rest, et al., 1997).

Trevino and colleagues (2006) provide a comprehensive review of the research that has been conducted on ethical decision-making and behavior in organizations, in the context of the Rest, et al. model of moral awareness, judgment, intention/motivation, and behavior (Trevino, Weaver, & Reynolds, 2006). Among the factors that are reportedly involved in moral awareness and judgment are gender, age, training and experience, situational factors (e.g., moral intensity), moral disposition (e.g., utilitarianism versus formalism), and setting (work versus otherwise). Moral disengagement mechanisms, such as rationalization, and other cognitive biases (e.g., a tendency to minimize the number of consequences considered) have been found to influence moral judgment also, potentially by reducing guilt and other internal sanctions. The moral intention or moral motivation component, the authors note, is

not always straightforward, in part due to the role of unconscious or automatic responses to situations (Haidt, 2001). Moral motivation is also seen to be connected to moral identity (Acquino & Reed, 2002), in that people prefer to act in concert with their self-concepts and avoid cognitive dissonance. Affect is also clearly involved, particularly the “moral emotions” of guilt, shame, and empathy (Eisenberg, 2000; Tangney, Stuewig, & Mashek, 2007; Tibbetts, 1997). A wide variety of individual and organizational factors have been implicated in moral behavior, including ego strength, locus of control, pressures on the job, role conflict, past exposure to misconduct, sanctions, climate, perceptions of procedural and distributive justice, and social learning from peers and ethical leaders. The existence of an organizational code of ethics is not among the factors shown to influence ethical behavior, according to the authors (Trevino, et al., 2006). Previous research by these authors (Ashkanasy, Windsor, & Trevino, 2006; Trevino & Youngblood, 1990) has shown that cognitive moral development, based on the Kohlberg theories of development, and measured by the Defining Issues Test (DIT) (Rest, 1979), also has an effect on ethical decision-making.

Thus, when contemplating possible individual factors at play in the etiology of research misconduct, the role of moral perception, judgment, and/or commitment would appear to be a logical beginning. And in fact, research has shown that (im)moral judgment has been associated with an increased likelihood of the kinds of misconduct that have some similarity to faculty research misconduct, including academic cheating among college students (King & Mayhew, 2002; Tibbetts, 1999; Tibbetts & Myers, 1999) as well as corporate crime (Paternoster & Simpson, 1996).

Rational Choice Theory

Rational choice theory (RCT) also has empirical support in explaining those same types of misbehavior, specifically academic cheating (Cochran, Chamlin, Wood, & Sellers, 1999; Michaels & Miethe, 1989; Nagin & Paternoster, 1993; Tibbetts, 1997; Tibbetts & Gibson, 2002; Tibbetts & Myers, 1999) and corporate crime (Paternoster & Simpson, 1996; Simpson, Paternoster, & Piquero, 1998). Grounded in the philosophy of utilitarianism, rational choice or rational action perspectives on behavior have their roots in economics (Tittle, Antonaccio, Botchkovar, & Kranidioti, 2010), and serve as a framework for explaining decision-making in terms of the more or less rational assessment of threats/costs/risks versus benefits/pleasures of a given action.

Some have asserted that rational choice theory is not a theory at all but simply a heuristic model that is not particularly useful in understanding behavior (De Haan & Vos, 2003). Others have suggested that the rational choice approach is really more of a methodology than a theory (Herne & Setala, 2004), or that RTC is not really a theory of decision-making, but a theory that predicts the choices that are made and/or the results of those choices, which leaves in question the causal factors involved in how individuals actually arrive at the decisions (Lahno, 2007). Still others have suggested that RTC serves as a useful complement to theories focused on individual factors and thus these authors encourage future researchers to develop and test integrated models involving both rational choice variables and individual characteristics (Nagin & Paternoster, 1993; Ogilvie & Stewart, 2010; Tibbetts & Gibson, 2002). Kroneberg & Kalter (2012, p. 74) referred to rational choice theory as a “workhorse and starting point for applied sociological research”

(Kroneberg & Kalter, 2012), a clear indication of the role that RTC has come to play in that field.

Thus it is apparent that rational choice has an extensive history and sufficient theoretical and empirical work to engender debates regarding how best to apply it. In fact, at least thirty versions or models of rational choice theory have been developed, most of which take micro-level perspectives that focus on individual actor assessments (Herne & Setala, 2004), although some scholars take a macro-level view where the organization or culture is the unit of analysis (Simpson, et al., 1998).

Several key features or elements seem to be central to most concepts of rational choice, which are: (a) maximization according to individual variation - an individual will make the choice that has the most expected value, considering the options; (b) consequentialism – a rational choice assessment will include the possible consequences of the various choices; (c) individual-act orientation – the individual will only consider those consequences that are caused by the specific action s/he is considering, not those that might come about for other reasons; and (d) unlimited intelligence – rational people have a theoretically unlimited capacity to use reasons and process information (Lahno, 2007).

This basic conceptualization of rational choice is referred to as “thin rationality” (also called “hard” or “strict”), which focuses almost exclusively on instrumental rewards and punishments, and may be compared to biological theories about organisms which naturally pursue their own self-interest (Hechter & Kanazawa, 1997). A key requirement of basic theories of rational choice is that individuals are assumed to be consistent in how they express their preferences. An example of a hard theory of rational choice is Subjective

Expected Utility theory, which is grounded in classical economics (Etzioni, 1988; Hausman & McPherson, 2006; Herne & Setala, 2004; Tversky & Kahneman, 1986).

This narrow perspective, however, does not take into account the context or environment, individuals' values and beliefs, or a host of other factors that may influence the individual's assessments of the situation. Thus, many newer models are characterized by "bounded rationality", allowing for the fact that people often don't have complete information when assessing situations and that other external factors may be involved. These "softer" versions of rational choice, or those with "thick rationality", specify various values, goals, characteristics, and circumstances, as axioms or assumptions of the model as well (Hechter & Kanazawa, 1997; Herne & Setala, 2004; Kroneberg & Kalter, 2012). An example of a theory that posits softer or bounded rationality is Self-Control Theory, which posits that low self-control may weaken rational decisions and prevent people from considering longer-term consequences (Tittle, et al., 2010).

So where, if at all, do moral development or moral principles come into this picture? If one takes an "internalist" perspective to rational choice (another term for thick, soft, or bounded rationality), then moral identity, motivations, and beliefs may simply be seen as additional expressions of choice (Aguar & de Francisco, 2009; Tittle, et al., 2010).

Alternatively, philosophers and other scholars have been exploring the idea that there is a rational choice basis for moral principles (as opposed to moral principles arrived at through intuition or faith or other avenues). Distributive justice, for example, can theoretically be achieved through cooperative bargaining between people which ideally would lead to the egalitarian (or at least most advantageous) distribution of benefits or resources (McClennen, 2010). From this perspective, rational choice behavior can be seen as inherently moral.

Integrating Morality and Rational Choice

Several studies have examined aspects of morality in concert with rational choice. For example, one study of the general public in Greece and Russia found that “moral acceptability” of the action was by far the most robust factor in predicting misconduct, over and above subjective expected utility variables and self-control. They also found significant interaction effects for expected utility, morality, and self-control in a couple of their analyses, but overall believed the results supported an independent effect for all three (Tittle, et al., 2010).

Kroneberg, Heintze, and Mehlkop (2010) provide support for this idea as well. Their study of 3,500 citizens in Germany showed that when respondents were asked about committing tax fraud and shoplifting, “instrumental incentives” (the rational assessment of costs and benefits) only predicted criminal intentions when internalized norms against the behaviors were weak. Strong normative prohibitions against the behaviors could be undermined, however, by “neutralizations”, rationalizations that legitimize breaking the rules. This research was grounded in the Model of Frame Selection proposed by Kroneberg, another example of an attempt to broaden rational choice theory to consider the situation as well as the individual (Kroneberg, Heintze, & Mehlkop, 2010; Kroneberg & Kalter, 2012).

Student cheating is one specific area of research that has attempted to consider both rational choice factors and moral development. The research on RCT and student cheating cannot be applied directly to faculty research misconduct for a variety of reasons, but there are some similarities that make it worthy of consideration. For example, ample evidence exists to suggest that moral development occurs while in college and in fact, continues throughout adulthood (King & Mayhew, 2002). It has also been shown that students take the

ethics they have acquired into the workplace with them (Nonis & Swift, 2001; Ogilby, 1995; Sims, 1993). Student cheating, like faculty misconduct, occurs in the environment of academia, and both may be highly influenced by the presence of deviant peers (Agnew, 1992) and/or socialization via exposure into a deviant pattern of behavior (M. S. Anderson, Horn, et al., 2007; M. S. Anderson, et al., 1994). Other authors likewise suggest that faculty apathy and lack of consistent punishment of undergraduate cheating constitute a risk factor for those students who subsequently move into their own academic careers (Turrens, Staik, Gilbert, Small, & Burling, 2002).

Among the individual costs that have been studied in relation to rational choice in the area of academic cheating is the concept of shame. Although “shame proneness” as a stable trait has been shown to lead to increased deviance (Tangney, et al., 2007; Tibbetts, 1997), anticipated shame as an emotion has been associated with lower cheating intentions and criminal behavior both (Cochran, et al., 1999; Grasmick & Bursik, 1990; Rebellon, Piquero, Piquero, & Tibbetts, 2010; Tibbetts, 1997). Informal sanctions like anticipated shame, or actual feelings of shame or embarrassment, may in fact mediate between formal sanctions and criminal behavior (Nagin & Paternoster, 1993; Rebellon, et al., 2010; Tibbetts & Myers, 1999). More broadly, Rebellon, et al., (2010) proposed that anticipated shame may serve as a common mechanism among various criminological theories, including self-control theory, strain theory, and differential association theory.

Research on corporate crime likewise might be illustrative and has the advantage that psychological pathology is not as relevant to corporate crime (or to research misconduct) as it is to other types of criminality (Piquero, Exum, & Simpson, 2005). On the other hand, these

authors define corporate crime as being behavior that largely benefits the organization, rather than the individual, which does not fit well with faculty research and how academia works. Nevertheless, one preliminary study on corporate crime demonstrated that a high desire for control is more applicable to corporate crime than low self-control, a concept that has been tested in regard to other types of criminal behavior (Piquero, Exum, et al., 2005). That study also showed that high desire for control was correlated with several rational choice considerations, such as certain sanction variables as well as shame, in predicting intentions to engage in illegal behavior.

In another corporate study, Paternoster and Simpson found that rational choice factors were only important in the intent to commit corporate crime when individuals were not restrained by moral considerations (Paternoster & Simpson, 1996). They suggested that moral judgments are made first, then rational choice factors come into play. In other words, when a given action was deemed very morally wrong, intentions did not appear to be affected by perceived sanctions or benefits

This same effect was found by Reynolds & Ceranic (2007). They tested the interactions between social consensus (versus ambiguity), moral identity (including internalization of moral principles and symbolization, which is demonstrating those through action), and moral predisposition in predicting unethical behavior. Moral predisposition was defined as formalism (rule or principle-based orientation) versus consequentialism (concerned with outcomes). They found that (a) ethical behavior was highest when formalism and moral identity were high, and (b) cheating was highest when consequentialism and moral identity were high. Apparently, a strong moral identity will lead to one extreme or the other (lowest or highest in cheating), and which depends on whether the individual

operates from a consequentialist or formalistic orientation. They found this effect more likely to occur in what they called a low consensus situation, although the situation they identified as low consensus was student cheating. As suggested by the authors, students may see themselves as moral individuals, but still engage in cheating because they may not see it as immoral and thus will do so if the consequences are unlikely or low.

Additional support for the idea of rational choice assessments in making moral decisions comes from a conceptual model initially proposed by Thomas Jones called “moral intensity” (Harrington, 1997; Jones, 1991; Jordan, 2007; Loe, Ferrell, & Mansfield, 2000; Singhapakdi, Vitell, & Franke, 1999). Moral intensity refers to a group of factors that are said to affect in varying ways all four components of the Rest model. Jones asserts that most research on ethical decision-making does not take into account factors associated with the issue itself, but rather focus only on the individual and environmental factors that may influence the process. Among the factors associated with the issue that are posited are magnitude of consequences, social consensus, probability of effect, temporal immediacy, proximity, and concentration of effect. At the point of moral perception/awareness, Jones suggests that issues of high moral intensity will be recognized as moral issues more often than those with low moral intensity. Intuitively, it also makes sense that moral intensity would affect the moral judgments that are then made. However, he also points out, consistent with the Rest model, that making a judgment about what is morally correct or right is not the same thing as making a decision about what to do. In Rest’s model, this involves taking into consideration factors other than moral correctness in forming an intent to act, and here Jones suggests that moral intensity variables will also be important, including a consideration of the possible consequences. Finally, he posits that actual ethical behavior

will be tied more frequently to high intensity versus low intensity situations. The present study was concerned with moral perception or sensitivity and moral intent, with a focus on the magnitude and probability factors (which can be seen as factors in a rational choice assessment) as well as social consensus (which can plausibly be applied to the question of how bad a given research misbehavior actually is).

Sierra and Hyman, 2008 found that moral philosophy (being an idealist versus a realist) interacted with one moral intensity factor – anticipated magnitude of consequences – in determining student intentions to cheat. Specifically, they found that the assessment of greater consequences led to less cheating, and the idealists (those committed to certain moral principles) tended to see greater harm in cheating than the relativists (those who are most concerned with the particular circumstances at hand) (Sierra & Hyman, 2008).

Finally, an interesting related concept is moral credentialing (an assertion of oneself as a moral person, either internally or externally), which has been found to actually increase unethical behavior in subsequent situations (Brown et al., 2011). Brown, et al., tested this idea in regard to cheating and found an interesting interaction between rationalization and moral credentialing. Moral credentialing only led to an increase in cheating in situations where the opportunity for rationalizing the behavior was low, that is, in unambiguous situations where the behavior would clearly be seen as wrong. When rationalization was possible, moral credentialing no longer appeared to have an effect on subsequent behavior. And when cheating did occur, after credentialing, in the high rationalization situation, the participants were not actually able to recall the extent of their cheating. As noted by the authors, the moral credentialing effect appears to be more likely due to a desire to be internally consistent (self-perception) than avoiding a bad impression on observers. This

research has intriguing possibilities for application to faculty research misconduct, such as in ambiguous, rationalizable, QRP situations. As suggested by Brown, et al., the standard ethics training in rules and regulations may actually train people to feel more virtuous and thereby increase misconduct.

Discussion

Bringing these various views together, it would appear plausible that in situations of high social consensus (FFPs), individuals will recognize the moral component and judge it as wrong, but in situations of ambiguity (such as that with some QRPs), they may not. When the moral component is unrecognized or ambiguous, researchers may be more likely to rationalize their decision to misbehave, particularly when their rational choice assessment suggests the payoffs may be high and the risks low. It is the ambiguous situations that would also seem to be more likely affected by other individual or environmental variables that have been found or theorized to contribute to misconduct, including ethical climate, exposure to misconduct in the past, and mentoring/education in how to make appropriate technical decisions in the conduct of research.

Chapter 3. Research Design and Methods

Research Design

This study employed a cross-sectional survey methodology to predict perceived likelihood of engaging in research misconduct. A mailed pilot survey phase was conducted first, followed by full administration using both postal mail and online survey options. Study costs were largely covered by a doctoral dissertation grant from the National Science Foundation.

Sample

The target participants for the study were full-time tenured and tenure track faculty from psychology and sociology departments at U.S. research universities, excluding adjunct, part-time, emeritus, and visiting professors. The selection of this population was based on several factors. First, since the norms, standards of practice, and approaches to mentoring and training of graduate students can be widely divergent from one field and discipline to another, there is reason to believe the results from this study might be different from one to another as well. This is supported by the results from the Martinson, et al., study (2006), which found a statistically significant effect of field of study on research misconduct in the social sciences specifically. Relatedly, the study was expected to be more manageable if limited to two disciplines, with the idea that if the results are promising, the study could be replicated later with other disciplines. Finally, research on research integrity is even more sparse in the social sciences than it is in the life and physical sciences, although the integrity of the results from psychological and sociological research can likewise have far-reaching effects on society.

The method used to identify members of the study population was to first identify universities in the United States with the highest likely percentage of research active faculty, which was done by downloading the categorical list of 96 RU-VH (Research Universities-Very High research activity) doctoral degree-granting research universities in the United States, as available from the Carnegie Foundation for the Advancement of Teaching in 2011 (see <http://classifications.carnegiefoundation.org/>). This method was selected because it seemed likely to most efficiently yield a mailing list that included the greatest number of participants who fit the criteria of being regular university faculty engaged in research in the two fields. Although this required locating names and contact information for a large number of individuals, which involved a fair amount of clerical effort, the alternative sources were either more limited or less efficient in terms of having others on the lists who do not fit the criteria (e.g., a sample of NSF-funded investigators, or a mailing list from the American Sociological Association or the American Psychological Association, which include many non-academics).

Sampling Procedures

The sampling method for the study involved first randomizing the list of 96 RU-VH universities referenced above. A sample of institutions for the pilot study was then identified by starting at the bottom of the list, and at each institution in turn moving up the list, identifying through institutional websites the names and contact information for all of the tenure track and tenured faculty from the psychology and sociology departments at those institutions. When the number of potential participants reached 100, all of the remaining faculty in the two departments at that institution were also included, for a total pilot sample of 130 faculty from 3 universities.

When mixed departments were encountered (e.g., sociology and social work), an attempt was made to identify only those faculty from the disciplines of interest, to the extent that information was readily available on institutional websites. In addition, the survey invitation included an eligibility sentence encouraging only those participants who consider themselves active researchers to complete the survey.

The same process was used to draw a sample for the full survey phase, except that the identification of institutions started at the top of the randomized list and proceeded until the number of potential participants reached 2,000. Adding in the remaining faculty from the departments in the final institution identified after reaching 2,000, the latter process yielded a total of 2,119 individuals from 40 universities, as shown in Table 1. This list was then randomly ordered, and 1,100 names were assigned to initially receive surveys through the mail, the remainder to be invited to participate through the online Survey Monkey software program. After removing names with invalid address information, the final sample sizes in the full study phase were 1,069 postal mail invitations and 1,001 invitations by email only. Further details are outlined in Table 1.

Method

All participants were invited by postal mail or by Survey Monkey email to complete an anonymous self-administered survey instrument. In the pilot study, participants received invitations and follow-up reminders entirely through postal mail and returned their surveys the same way. There were two methods used in the full administration, however. The *Mixed* sample received hard copy invitations through the mail and then non-respondents also received follow-up emails from Survey Monkey; thus surveys from this group came in via both avenues. The *Online* sample participants were contacted and invited to participate only

by email from Survey Monkey. All three components (pilot, full phase mixed, full phase online) were reviewed and determined to be Exempt by the Iowa State University Institutional Review Board.

The procedures for the pilot study, which took place in the fall semester 2011, included a cash incentive, pre-notification, stamped return envelope, multiple reminder follow-ups, and of course university sponsorship, all methods shown to be effective in enhancing response rates (Church, 1993; Dillman, 2000; Porter & Whitcomb, 2003). All are procedures recommended in *The Tailored Design Method* for survey administration (Dillman, 2000). The participants first received a pre-notification by postcard that they would be receiving a mailed survey on research ethics. Approximately one week later they received a letter of invitation, accompanied by the survey, the cash incentive, a stamped return envelope, and a stamped return postcard for notifying the researcher that the survey had been completed and returned. The letter and postcard instructed the respondent to return the survey and postcard separately. The letter also shared appropriate human participant protections information, such as the voluntary and anonymous nature of the study. About one week after the initial mailing, a reminder postcard was sent out to all participants, encouraging them to complete the survey if they had not already done so. Finally, about two weeks later, all of those who did not return the postcard received a second complete packet, requesting their participation one final time. The survey was sent to potential participants during one of the relatively slower times of the academic year (mid-fall).

Administration of the full survey was initiated in mid-spring semester, 2012. The *Mixed* sample received the pre-notification postcard, the initial survey packet as described above, and a reminder postcard. Those who did not yet respond to those contacts then

received an email invitation from Survey Monkey, unless their name was listed on the Survey Monkey system as having previously opted out of all surveys from that program. About 10 days later, they received a final invitation/reminder by email, for a total of five possible contacts.

The *Online* sample procedures were very similar, with the exception that no pre-notification was sent, since all contacts were by email from Survey Monkey, and no cash incentive was offered. Like the pilot and mixed samples, the initial invitation contained complete information about the study for consent purposes, and consent was presumed by the individual clicking on the link to the survey and returning a completed form. Those who did not have a pre-study opt-out on file with Survey Monkey still had an option to opt out of the study by clicking on a link that was included in every invitational email for that purpose.

As noted, a token cash incentive was included with all initial postal mail survey packets to encourage participation. Most of the research on the effectiveness of token incentives has suggested an appropriate amount to be between \$ 1 and \$ 10 (Edwards, Cooper, Roberts, & Frost, 2005; Trussell & Lavrakas, 2004). A \$ 5 check was shown in one study to be the most cost-effective, in part because not all participants actually cash the check (although this must be balanced against the potential impact of participant annoyance for having to cash a small check) (James & Bolstein, 1992). The limited budget for the project in this case required that the token incentive be limited to \$ 2, and a \$ 2 bill was selected because it had the small, added benefit of being a relatively unusual denomination.

Given the sensitive nature of the subject matter, an anonymous self-administered survey method was necessary in order to minimize response bias. Anonymity in this study was assured by having survey data stored separately from email addresses in Survey

Monkey, and by encouraging participants to avoid providing any identifying information on survey materials. On the infrequent occasion when an individual did choose to include a name or return address on the envelope containing a survey, the survey was simply removed and the envelope discarded.

In Fanelli's meta-analysis mentioned previously (Fanelli, 2009), mailed surveys were shown to have higher response rates than those that are handed out in person. There were no differences found in response rates between self- versus non-self-reports or between surveys that used "fabrication or falsification" versus not. Of the eighteen studies that Fanelli included in his analysis, the response rates ranged from 22% to 78%. The largest studies used mailed surveys with postcard return and had response rates of 65.5% (Swazey, et al., 1993); 47.7% (Martinson, et al., 2006; Martinson, et al., 2005), and 52% (Titus, et al., 2008). Interestingly, a more recent Martinson, et.al. study not reviewed by Fanelli, using the same method, only had a response rate of 35% (Martinson, et al., 2009). Most of the samples from these latter studies were drawn from among federally-funded faculty and/or faculty from larger research institutions. In the very recent study of psychologists, the survey response rate among academic psychologists was 36% (John, et al., 2012). The response rates for the present study are shown in Table 1. The analyses and results described in this paper are based on the full phase sample of 581 respondents from 40 institutions, reflecting an overall response rate of 28%.

Table 1. *Study Samples*

Institutions	N		
Total very high research universities	96		
In pilot study	3		
In full study	40		
Participants	N	n	Response Rate
PILOT STUDY			
Pilot study sample	130	37	28%
FULL PHASE			
Initial mailing list	2,119		
Assigned to Mixed sample	1,100		
Deletions due to incorrect information	31		
Subtotal Mixed sample	1,069		
Returns by postal mail		280	26%
Returns by Survey Monkey		96	9%
Subtotal Mixed respondents		376	35%
Assigned to online sample	1,019		
Deletions due to incorrect information	18		
Subtotal online sample/respondents	1,001	205	20%
Final full study sample	2,070	581	28%

Instrument and Measures

The survey instrument was comprised of two sections, taking an estimated 40 minutes for the average individual to complete. The first and largest section presented three overall vignettes with three different scenarios¹ under each, for a total of nine scenarios depicting various types of research misconduct and/or questionable research practice. Scenarios were presented one to a page, and then the same five questions were posed after each regarding the respondent's perceptions and expectations. The final section includes several demographic

¹ In the actual instrument, the terms "scenario" and "item" were used to refer to each of the three background stories and the three immediate situations under each, respectively. In this paper, the terms "vignette" refers to the background story and when "scenario" is used here, it is referring to the nine component items.

items and other general characteristics about the respondents, including field, academic status, and percent of time spent conducting research.

Scenario content. The details of the conduct depicted in the nine scenarios are critical to understanding the analyses that are to follow. All scenarios depict an untenured assistant professor conducting research and looking forward to (and under the pressure of) publishing the results and obtaining tenure.

In *IRB Noncompliance*, developmental psychologist Dr. Cedar decides not to inform the Institutional Review Board about a change in sample from elementary school students to junior high students because he is concerned about a possible delay in completing the research. The second scenario for Dr. Cedar, *Fabricated Data*, describes how he belatedly discovers that the third set of study participant observations was done incorrectly, leading to a decision to fabricate the data, using his “best guess” for what data to use. In Dr. Cedar’s third and final scenario, *Reneges on Authorship*, he goes back on a promise to his graduate students that they would be first authors on the manuscripts they are writing as extensions of Dr. Cedar’s study.

In *Parents Dictate Study Groups*, Dr. Daniels, a behavioral economist, compromises on randomly assigning students to receive various levels of cash for earning grades in school because some parents and children refuse to consent unless they are placed in one of the payment groups. After the results are in, Dr. Daniels instructs a graduate student in *Adjusted Reporting* to downplay striking results regarding socioeconomic status and ethnicity in a report because of a concern about how they might be interpreted by others. Dr. Daniels then goes on in *Adjusted Images* to introduce a new round of data collection involving *fMRI* brain

imaging and when they don't show promising results, agrees to allow his post-doctoral assistant to adjust the images so they appear more interesting.

In *Authorship to Gain Favor*, young anthropologist Dr. Channing agrees on the suggestion of a colleague to add a senior member of the department as an author on a manuscript even though his only contribution was advice regarding data analysis.

Unfortunately, Dr. Channing discovers in *False Reporting* that she originally analyzed some of the data incorrectly and finds they are now only of marginal significance, yet Channing proceeds to report the original results anyway with a note that readers should be cautious about interpreting them. Finally, in *Conflict of Interest*, Dr. Channing decides not to question a lead collaborator who fails to mention a relevant private consulting agreement in a grant application.

When results are reported below in Chapter 4, the first three scenarios listed in each table or figure will be those that are classified as Falsification, Fabrication, or Plagiarism (FFP, the clear misconduct situations, according to the federal definition), followed by the remainder, which are classified as Questionable Research Practices (QRP, the more ambiguous situations). Table 2 provides a matrix of researchers and the scenarios in which they were depicted. The three FFP scenarios are starred (*).

Prior to administration of the survey, the order of the three vignettes was assigned to participants according to the first letter of their last names. For example, version 1 of the instrument presented the three Cedar scenarios, followed by the three Daniels scenarios, and then the three Channing scenarios; version 2 presented Cedar, Channing, and Daniels; and version 3 presented Daniels, Cedar, and Channing, etc., for a total of six versions of the

Table 2. *Crosswalk of FFP and QRP Scenarios by Researcher*

Researcher	Scenario
Cedar A	IRB Noncompliance
Cedar B*	Fabricated Data*
Cedar C	Reneges on Authorship
Daniels A	Parents Dictate Study Groups
Daniels B	Adjusted Reporting
Daniels C*	Adjusted Images*
Channing A	Authorship to Gain Favor
Channing B*	False Reporting*
Channing C	Conflict of Interest

instrument. Using an alphabetized mailing list, version 1 was sent to the first person on the list, version 2 to the next, and so on. The order of the scenarios within each vignette was not changed, since they build upon each other. The 581 surveys returned during the regular phase of the study were split more or less evenly between the six versions of the instrument (15% - 19% of the sample each).

An excerpt of the instrument is provided in *Figure 1*, showing Dr. Cedar's background story (labeled as *Scenario* on the instrument, as shown) followed by his first scenario. All three stories and their component scenarios are included in Appendix.

SCENARIO 1. Dr. Cedar, a young developmental psychologist, obtained an R01 Research Grant from the National Institute of Child Health and Human Development to study aggression in elementary school children. Cedar suspects that some children with a certain genetic makeup will be especially susceptible to the effects of television violence. Part of the project requires obtaining a cheek swab for DNA analysis, but interviewing and observing children in the classroom constitutes the major effort. Cedar is anxious to get results from this study published as soon as possible to support an upcoming tenure review.

ITEM 1A. *After collecting data for one semester, Dr. Cedar is concerned that the preliminary results from the study are not promising and decides to expand the research to include adolescents. Cedar is frustrated, however, that the study may require additional IRB review due to the change in sample, and therefore decides to proceed with the consent documents already approved for the younger children without bringing the sample change to the attention of the IRB.*

Figure 1. Excerpt 1 from Survey Instrument

Background on scenarios. Tibbetts and other authors have recommended the scenario approach for future research involving rational choice theory (Tibbetts & Gibson, 2002), which typically entails presenting respondents with hypothetical scenarios as a method of assessing an individual's likelihood of acting in a certain way. Researchers have used it in studies exploring rational choice theory in cheating, crime, and other moral decision-making studies (Nagin & Paternoster, 1993; Ogilvie & Stewart, 2010; Piquero, Exum, et al., 2005; Piquero, Tibbetts, & Blankenship, 2005; Rebellon, et al., 2010; Reynolds & Ceranic, 2007; Seipel & Eifler, 2010; Sierra & Hyman, 2008; Simpson, et al., 1998; Tibbetts, 1999).

A cautionary point was made by Bouffard and colleagues (2010) in regard to the use of scenarios in research involving rational choice assessments. They found that participants were more likely to say that certain sanctions would occur as a consequence of misbehavior if they were presented as possible outcomes by the researchers than if the participants themselves were asked to generate their own lists of possible consequences. Interestingly, participants rated research-identified benefits lower than those they generated themselves, but researcher-identified sanctions about the same as those that were self-identified (Bouffard, Exum, & Collins, 2010).

A clear limitation to the use of scenarios is that intentions to engage in a particular behavior are not synonymous with actual behavior (Weber & Gillespie, 1998) and may not elicit emotions to the degree that may be necessary for certain kinds of research (Collett & Childs, 2011). However, research has shown that perceived intentions and behavior are associated with one another (Beck & Ajzen, 1991), and using this approach was intended to

lessen the risk of response bias, particularly as compared to self-reports of actual research misconduct by academic faculty.

The nine scenarios used in this study were adapted from those in the *Ethical Decision-Making Measures (EDMs)* developed by a team of researchers at the University of Oklahoma (Michael D. Mumford, et al., 2006). Mumford, et al., created four *Ethical Decision-Making Measures (EDMs)*, each focused on a different set of disciplinary areas, one of which is the social sciences. The measures and permission to use them for this study were received from the authors.

The *EDMs* were developed using a multi-phase process that included: (a) a review of various codes of conduct in biology, social sciences, and health fields; (b) a review of web sites for misconduct case studies and application of specific criteria to select them for possible use; (c) selection of case studies by a panel of psychologists and experts in each of the fields; (d) development of scenarios based on the case studies; (e) panel identification of “events” that might occur in the situations described in the scenarios, half of which were seen as technical and half as ethical events, with the ethical events being matched to one of seventeen dimensions of ethical research conduct included in a taxonomy developed by (Helton-Fauth, et al., 2003); and (f) panel generation of possible responses to the events. In the case of the ethical events, a third of the responses generated were categorized as “highly ethical”, a third “moderately ethical”, and a third “unethical”. The result was an instrument that included three events for each of seventeen dimensions of conduct for each of the three target fields, with three to five events included under each of several scenarios. Participants were instructed to select two responses to each event under each scenario. Responses were then scored as low, moderate, or high, in terms of ethicality, and aggregated into four scales:

data management, study conduct, professional practices, and business practices. (The scoring was later adjusted to aggregate scores into seven dimensions: (a) data management; (b) mentoring; (c) publication and authorship; (d) peer review; (e) collaborative science; (f) research misconduct; and (g) conflicts of interest.)

Several strategies were used to establish the validity and reliability of the *EDMs* (Michael D. Mumford, et al., 2006). Construct validity was tested by comparing results on the *EDMs* with several existing instruments that measure potentially related constructs such as verbal reasoning, divergent thinking, agreeableness, conscientiousness, narcissism, and socially desirable responding. The *EDM* results for the most part were not found to be associated with social desirability or cognitive abilities (such as the verbal reasoning test) or with general dispositional traits (such as conscientiousness, neuroticism, and agreeableness), but they were related to cognitive strategies (e.g., recognition of circumstances) and with certain personality variables that were characterized by the authors as involving “the assumptions people make about themselves or others” (e.g., avoidance of responsibility, cynicism, and narcissism).

The team also examined the relationship between participant exposure to unethical research situations and their *EDM* scale scores, achieving reliability co-efficients of .84, .88, .87, and .66 for their four scales (data management, study conduct, professional practices, and business practices, respectively), and clear relationships between exposure and *EDM* scores (with correlations ranging from -.24 to -.38 for the four scales). Participant ratings on the severity, frequency, and punishment aspects of misconduct in a mock Institutional Review Board case study were virtually all found to be associated with *EDM* scores as well.

One key adaptation of the *EDM* necessary for this study was to clearly identify all scenarios as involving a junior faculty member not far from a tenure review. This career status variable served as a standardized proxy for the level of “benefit” in the rational assessment, because all respondents can be expected to know that junior professors must produce scholarly publications in order to be awarded tenure, whereas senior professors may benefit, but publications are not as vital to their career status.

Other adaptations were made to identify the specific action taken or decision made by the researcher in the scenario, since the original scenarios did not typically do so. When at all possible, the actions were selected from among the lists of response options included in the original measures. This adaptation was necessary to allow respondents to assess the action taken.

The *Social Sciences EDM* is the version that was adapted for this study. The adaptations to the scenarios were discussed with Dr. Shane Connelly, a principal investigator on the research team who developed the original *EDMs* and her conclusion was that the changes were not inappropriate given the purpose of the study.

In addition, two other experts in research misconduct were consulted as to the appropriateness and realism of the scenarios. The first individual consulted was Dr. Ann Hohmann, who holds a Ph.D. in Sociology from Rutgers, worked as a program officer for 20 years at the National Institute of Mental Health, and now serves as an investigator of scientific misconduct in the Office of Research Integrity, the federal agency responsible for the regulations that define FFP. Dr. Hohmann suggested that five of the scenarios might be considered FFP, depending on the circumstances, and these five included the three that were categorized that way for the study. When asked how realistic the scenarios were in her view,

Dr. Hohmann expressed only one concern about the inclusion of an *fMRI* scan in one of the scenarios, because she thought researchers would not likely have access to that equipment without grant funding. Since no mention was made of funding either way in the scenario, a decision was made to retain this scenario, given its utility for other reasons. The second individual who provided advice was Dr. Gerald Koocher, who is Associate Provost and Professor of Psychology at Simmons College, editor of the journal *Ethics and Behavior*, and the author of fourteen books as well as the open-access handbook, *Responding to Research Wrongdoing: A User Friendly Guide* (Keith-Spiegel, et al., 2010), which is widely referenced and published on their website at www.ethicsresearch.com. Dr. Koocher actually edited the study instrument and provided numerous useful comments and suggestions.

Assessment questions and scoring. Each of the nine scenarios on the study instrument is followed by several items that together ask the respondent to assess the action taken in the scenario from both a moral and a rational choice perspective. These items are listed in *Figure 2*.

Item 1 is designed to elicit respondents' perceptions of the likelihood they themselves might take the same action in that situation. This question is addressing the moral intent component of the Rest four-component model of ethical decision-making (Rest, 1984). In the analysis, this item will serve as the dependent variable, Probability of Misconduct², and is assessed by the respondent as a probability between 0 and 100%. Item 2 asks respondents to assess the extent to which a moral dimension is involved in each scenario, using a Likert

² Question 1 is being referred to for purposes of the analysis as *Probability of Misconduct* even though not everyone would agree that all of the scenarios should be characterized as misconduct.

scale of 1 (Moral dimension not present at all) to 5 (Moral dimension clearly present). This item is addressing Rest's moral sensitivity component, and in the analysis, will serve as an

<p>1. In regard to Item X above, what are the chances that you yourself would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]</p> <p style="text-align: right;">_____ %</p>	
<p>2. To what extent does the situation described in Item X include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense.</p> <p style="text-align: center;">Moral dimension not evident at all 1 2 3 4 5 Moral dimension clearly present</p>	
<p>3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]</p> <p style="text-align: center;">Not at all wrong 1 2 3 4 5 Very Wrong</p>	
<p>4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]</p> <p>a. A colleague in the department? _____ %</p> <p>b. A publisher when the article is submitted for peer review? _____ %</p> <p>c. A university administrator or research oversight committee? _____ %</p>	
<p>5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator <i>did</i> become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]</p> <p>a. Personal sense of shame or guilt _____ %</p> <p>b. Embarrassment due to lost respect of colleagues in the department _____ %</p> <p>c. Censure in personnel file _____ %</p> <p>d. Censure by research review committee _____ %</p> <p>e. Sanctioned from engaging in research for period of time _____ %</p> <p>f. Dismissal from the university _____ %</p> <p>g. Criminal arrest and prosecution _____ %</p>	

Figure 2. Excerpt 2 from Survey Instrument

independent variable referred to as Moral Dimension. Unless the respondent chooses "Not Applicable" for Item 2, Item 3 then invites a judgment in regard to how morally wrong the action taken is, using a Likert scale of 1 (Not at all wrong) to 5 (Very wrong). This item is

addressing Rest's moral judgment component, and in the analysis, will serve as an independent variable referred to as Moral Judgment.

Items 4 and 5 then ask respondents to assess the likelihood that the action will be "caught" or found out, designated in the analysis as Detection variables, and the likelihood of informal and formal sanctions if the action was in fact found out, designated in the analysis as Internal Sanctions and External Sanctions. The likelihood of each of the detection and sanction items are recorded on a scale of 0-100% by the respondent.

Data Analysis

Analyses of the data included calculating descriptive statistics and regression analyses, using the data from the full study administration only. Frequencies and means were calculated for all key items on the instrument, as well as composite variables for the rational choice assessment items, as described below. Alphas were calculated to ensure good reliability of the composites. Finally, multiple regression was the primary inferential procedure used to answer the research questions.

Multiple regression was performed for each of the nine scenarios separately, using selected variables. Responses from an individual for a given scenario were only included in the data used in the analyses if the individual answered all items for that scenario.

The dependent variable in the analyses was Probability of Misconduct, the respondent's estimate of the likelihood s/he would take the same action as that depicted in each scenario. The primary independent variables in the regression models were: (a) Moral Judgment; (b) a mean composite of the three Detection items; (c) a mean composite of the two Internal Sanction items, Shame and Embarrassment; and d) a mean composite of four of the five External Sanction items, which included Censure in Personnel File, Censure by

Review Committee, Sanctioned from Engaging in Research, and Dismissal from the University. The external sanction Criminal Arrest and Prosecution was rarely scored as anything other than 0% by the respondents and so not included in these regressions. Similarly, Moral Dimension (Item 2 on the instrument) was included in initial regressions, but not found to contribute much and dropped from subsequent analyses.

The key control variables used in the analyses were:

- Race, using binary categories of White, Black/African American; Latino/Hispanic, Asian/Pacific Islander, and Other, with White as the reference category.
- Gender, binary category with male as the referent.
- Field, using binary categories of psychology and sociology, with psychology as the reference category.
- Academic position using binary categories for assistant, associate, full professor, and other, with assistant professor as the reference category.
- Time spent on research, as a continuous variable of 0-100%.

In Chapter 4, reporting of the results is structured to first provide descriptive data for respondent demographics and other characteristics, followed by responses on each scenario for the probability of engaging in research misconduct by discipline and *t test* results for the differences between the disciplines. The next section, Moral Assessment, provides the proportions, by discipline, of respondents perceiving a moral dimension in each scenario and the proportion judging the researcher's action in each scenario as wrong or very wrong. Included are tests of the significance of apparent differences between the two disciplinary groups. These are followed by correlations between the disciplines on the Moral Dimension

and Moral Judgment questions. In the third section, Rational Choice Assessment, the average perceived probabilities are provided for each of the Detection items, Internal Sanctions, and External Sanctions for each scenario. This section also includes reliability estimates the Detection, Internal Sanctions, and External Sanctions composites, followed by results for the perceived likelihood of detection and sanctions by scenario using the three composites.

Finally, regression analysis was performed to answer the original research questions. Recall that research question 1 was “To what extent do rational choice factors predict the intention to commit research misconduct?” and research question 2 was “To what extent does the awareness of and judgment regarding a moral component predict the intention to commit research misconduct?). These questions were answered by using a regression model that included all of the above independent variables, with Probability of Misconduct as the dependent variable.

Research question 3, “Are moral sensitivity (dimension) and judgment associated with rational choice assessments?” and research question 4, “To what extent is the ambiguity of a given research decision (e.g., QRP versus FFP) associated with the relative importance of moral and rational choice factors in the determining the course of action?” were more challenging questions. One of my hypotheses here was, first of all, that respondents will more often see the clear situations (the FFP scenarios) as involving a moral dimension, compared to those with greater ambiguity (the QRPs). Secondly, when they do see a moral dimension, and thus go ahead and assess the situation as right or wrong, they will score the actions taken in the FFPs as being more wrong than in the more ambiguous QRP’s. Thirdly, when individuals see the actions described in the various scenarios as less wrong, the

likelihood of detection and various sanctions will become more salient in whether an individual might engage in misconduct. In other words, the moral clarity or ambiguity of a given situation may be a key factor in the prediction of misconduct, in that once an action is assessed as very wrong by an individual, the likelihood of detection and sanctions will become less relevant. Of these three hypotheses, only the latter was formally tested in the regression, although observational data related to the initial two hypotheses are reported in the descriptive results.

Chapter 4. Results

Respondent Characteristics

Table 3 provides the descriptive results for the respondent demographics and other characteristics. Most respondents with completed surveys were White (90%), and the sample was split roughly in half by gender and by discipline. In addition, more than 90% were tenure track faculty, as intended, with about 46% of the respondents being full professors.

Table 3. *Characteristics of Study Sample*

Characteristic	n	%
Race/ethnicity		
White/Caucasian	457	78.7
Black/African American	22	3.8
Hispanic or Latino	18	3.1
Asian/Pacific Islander	7	1.2
Other	2	0.3
Gender		
Female	242	42.4
Male	267	46.8
Academic position		
Tenure track assistant professor	113	19.8
Tenured associate professor	116	20.3
Tenured professor	234	41.0
Non-tenure track faculty	28	4.9
Administrator	11	1.9
Other	4	0.7
Field/discipline		
Psychology	263	46.1
Sociology	238	41.7
Other	8	1.4
Graduate training in the U.S.		
No	16	2.8
Yes	493	86.3
Ever observed misconduct		
No	197	34.5
Not sure	63	11.0
Yes	250	43.8

Note. N=581. Totals and percentage values do not equal 581 and 100% respectively due to non-responses.

All except 3% of the sample received their graduate training in the U.S. Forty-nine percent reported having observed what they would consider to be research misconduct in the past, and another 12.4% were not sure on that question. About 79% currently spend between 26% and 75% of their time conducting research, with the mean being 55%.

Moral Assessment

Probability of misconduct. The first key question for the analysis is how likely are the respondents to take the same action as that depicted in these scenarios. The results are shown in *Figure 3* for each of the two sub-samples involved in the study, faculty from Psychology and from Sociology departments³, with the three FFP scenarios being listed first. *Authorship to Gain Favor* is clearly the scenario that respondents are most likely to identify with. As also shown in Table 4 in further detail, psychologists reported on average that there was a 41% likelihood they would do the same as the researcher in the scenario did under the same circumstances, and sociologists reported an average 37.3% likelihood. The least likely scenario for both groups was *Fabricated Data*, with psychologists reporting a mere 1.7% likelihood of doing that and the sociologists 5.4%. Overall, the average response for psychologists appears to run on average about 4-6 percentage points lower than for the sociologists on several of the scenarios, including all three of the FFP scenarios. As shown, *t test* results demonstrate that some of these differences are in statistically significant. Interestingly, *Authorship to Gain Favor* is one of the two in which the psychologists in the sample scored higher than the sociologists, along with *Adjusted Reporting*, both QRP scenarios, but neither of those two *t tests* were statistically significant. It is also worth noting

³ Responses from the 8 individuals who marked “Other” for field/discipline are not included in the field comparisons.

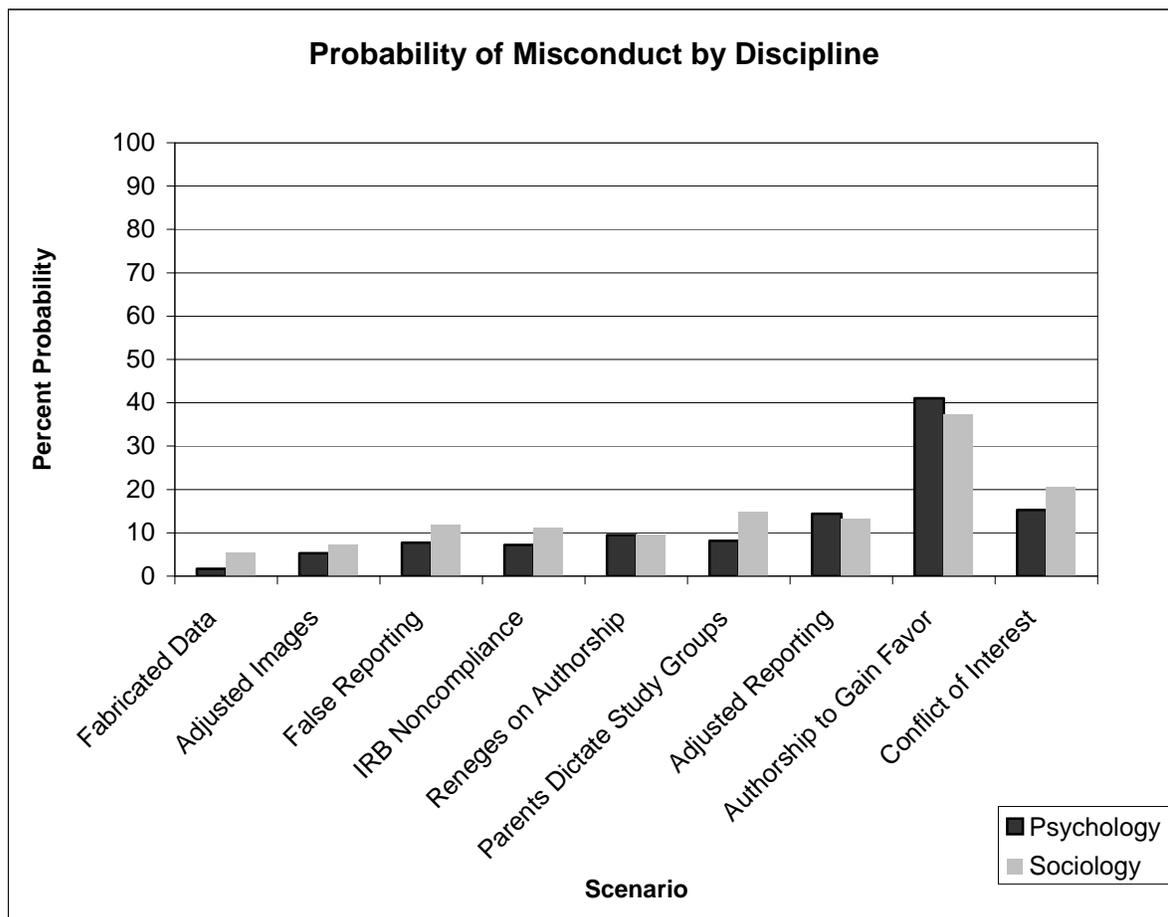


Figure 3. Probability of Misconduct by Discipline

that the standard deviations on some of the scenarios are fairly high (not shown). *Authorship to Gain Favor*, for example, is about .30 for both groups, suggesting a wide variation within each group as to whether or not respondents would be likely to do this.

Moral dimension and moral judgment. The second key component in the moral assessment of the scenarios involved respondents rating on a five-point Likert scale the

Table 4. *Disciplinary Differences in Probability of Misconduct*

Scenario	All Respondents				Psychology				Sociology				diff.	t	
	M	n	Min	Max	M	n	Min	Max	M	n	Min	Max			
Fabricated Data	3.5	468	0	100	1.7	235	0	100	5.4	199	0	100	-3.7	-3.01	**
Adjusted Images	6.2	434	0	100	5.3	222	0	80	7.2	191	0	100	-1.9	-1.18	
False Reporting	9.4	482	0	100	7.7	243	0	75	11.8	207	0	100	-4.1	-2.56	*
IRB Noncompliance	8.7	476	0	100	7.2	227	0	100	11.3	207	0	100	-4.1	-2.08	*
Reneges on Authorship	9.4	474	0	100	9.5	242	0	80	9.6	204	0	100	-0.2	-0.11	
Parents Dictate Study Groups	11.0	421	0	100	8.2	207	0	100	14.8	185	0	100	-6.6	-2.98	**
Adjusted Reporting	14.0	455	0	100	14.4	234	0	95	13.1	196	0	100	1.3	0.58	
Authorship to Gain Favor	39.1	451	0	100	41.0	221	0	100	37.3	200	0	100	3.7	1.26	
Conflict of Interest	17.5	466	0	100	15.2	237	0	90	20.6	205	0	100	-5.4	-2.31	*

*p≤.05. **p≤.01. ***p≤.001.

extent to which they perceived there to be a moral dimension to the scenario. Ratings ranged from 1 (moral dimension not present at all) to 5 (moral dimension clearly present), and results are shown in Table 5 for the percentage of total respondents that selected a 4 or 5 on the scale. Not surprisingly perhaps, the three scenarios rated most often by respondents overall as having a moral dimension are the three FFP scenarios for each group, followed closely by *Conflict of Interest* and *Reneges on Authorship*. Only 40.1% of overall participants perceived the scenario *Authorship to Gain Favor* as having a moral dimension.

In the remaining component of the moral assessment, Moral Judgment, respondents rated how morally wrong they felt the action taken in the scenario was, from 1 (not at all wrong) to 5 (very wrong). Again, the results are shown in Table 5 as the percentage selecting 4 or 5 on the Likert scale. Ratings appear to parallel the moral dimension ratings, with the actions taken in the three FFP situations most often seen as wrong or very wrong, followed again by *Reneges on Authorship* and *Conflict of Interest*. Generally, the results for Moral Dimension and Moral Judgment trend in the same direction as those for Probability of Misconduct, suggesting perhaps that those who see a moral dimension in these scenarios may be more likely to view the action taken as wrong, and thus less likely to believe they would do it under the same circumstances.

Also included in Table 5 are the breakdowns by discipline in percentages of respondents rating the scenario on Moral Dimension and Moral Judgment. The results show that the psychologists tended to score the scenarios a little higher than the sociologists (more likely to see a moral dimension and wrongness in the scenario) on three of the items,

Table 5. *Disciplinary Differences in Moral Dimension and Moral Judgment Assessments*

Scenario	Moral Dimension								Moral Judgment							
	Respondents Choosing 4 or 5 (Clearly Present)								Respondents Choosing 4 or 5 (Wrong or Very Wrong)							
	All		Psychology		Sociology		<i>diff</i>	<i>z</i>	All		Psychology		Sociology		<i>diff</i>	<i>z</i>
%	n	%	n	%	n	%			n	%	n	%	n			
Fabricated Data	95.3	446	96.6	227	93.5	186	3.1	1.5	93.8	439	95.3	224	92.5	184	2.8	1.2
Adjusted Images	88.0	382	86.9	193	89.0	170	-2.1	-0.6	87.9	381	86.9	193	88.5	169	-1.6	-0.5
False Reporting	88.8	428	90.5	220	88.4	183	2.1	0.7	85.3	411	87.6	213	83.1	172	4.5	1.4
IRB Noncompliance	64.9	309	61.7	140	66.7	138	-5.0	-1.1	64.1	305	62.6	142	66.2	137	-3.6	-0.8
Reneges on Authorship	82.7	392	78.5	190	87.3	178	-8.8	-2.4 *	78.3	371	74.4	160	83.3	170	-8.9	-2.3 *
Parents Dictate Study Groups	60.3	254	59.9	124	60.5	112	-0.6	-0.1	62.2	262	62.8	130	59.5	110	3.3	0.7
Adjusted Reporting	59.8	272	58.1	136	60.7	119	-2.6	-0.5	54.5	248	53.4	125	54.6	107	-1.2	-0.2
Authorship to Gain Favor	40.1	181	36.7	81	43.0	86	-6.3	-1.3	20.2	91	16.7	37	22.0	44	-5.3	-1.4
Conflict of Interest	85.0	396	86.5	205	82.9	170	3.6	1.0	77.7	362	78.9	187	75.1	154	3.8	0.9

* $p \leq .05$

Fabricated Data and *False Reporting* (both FFPs) and on *Conflict of Interest* (a QRP scenario), on both questions. On one additional question, they scored the QRP scenario, *Parents Dictate Study Groups* higher in terms of wrongness, but slightly lower on seeing a moral dimension in the first place. The scores between the two samples are actually quite similar on this scenario, however. Finally, it can be seen that the sociologists scored the remaining scenarios higher than the psychologists on both Moral Dimension and Moral Judgment, which were *Adjusted Images*, among the FFPs, and *IRB Noncompliance*, *Reneges on Authorship*, and *Adjusted Reporting*, among the QRPs.

The question remains, however, whether or not the differences observed between the psychologists and sociologists are statistically significant. And, in fact, the tests of proportions between the percentages for each discipline were statistically significant for only one scenario, and for the same item. Just under 9% fewer psychologists than sociologists reported seeing a moral dimension in and judging *Reneges on Authorship* as wrong.

A final consideration in regard to the proportion of respondents perceiving a moral dimension and judging actions as morally wrong is the fact that the responses given on these two items are highly correlated with one another. As shown in Table 6, the correlations are all statistically significant at $p < .001$. A likely explanation for this is that these two items on the instrument may actually be measuring the same thing. It is possible that respondents did not fully perceive what was meant in regard to whether or not there was a moral dimension present in the scenario as distinct from judging the action itself as more or less wrong. Because these items appear to be measuring the same construct, only Moral Judgment was included in the regression models.

Table 6. *Correlations Between Moral Dimension and Moral Judgment Mean Responses*

Scenario	Moral Dimension		Moral Judgment		n	r	
	M	S.D.	M	S.D.			
Fabricated Data	4.8	0.6	4.7	0.6	468	0.72	***
Adjusted Images	4.5	0.8	4.5	0.8	434	0.88	***
False Reporting	4.5	0.8	4.3	0.9	482	0.75	***
IRB Noncompliance	3.9	1.2	3.8	1.1	476	0.77	***
Reneges on Authorship	4.3	0.9	4.1	0.9	474	0.70	***
Parents Dictate Study Groups	3.8	1.2	3.7	1.2	421	0.75	***
Adjusted Reporting	3.7	1.2	3.5	1.2	455	0.82	***
Authorship to Gain Favor	3.2	1.2	2.6	1.1	451	0.69	***
Conflict of Interest	4.4	0.8	4.1	0.9	466	0.73	***

Note: Range of responses is 1-5 for both items.

***p<.001.

Rational Choice Assessment

Likelihood of detection. Moving on now to the first rational choice assessment item, which involved the respondents estimating the likelihood of detection if they did in fact take the action described in the scenario. It is important to note that the question instructs respondents to assume they themselves did not tell anyone. To the extent that psychology and sociology researchers work independently, rather than as members of collaborative teams, this could be an important distinction. Results are shown below in Table 7. The average estimated likelihood of detection is shown for each type of detection: (a) by a colleague in the department, (b) by a publisher when the article is submitted for peer review⁴; and (c) by a university administrator or research oversight committee.

⁴ In “Conflict of Interest”, this Detection item was changed to “the funder when the grant is submitted for review” because the scenario involved reporting a potential conflict of interest in a grant application.

Table 7. *Perceived Likelihood of Detection of Misconduct*

Scenario	Colleague		Publisher		Administrator		n
	M	S.D.	M	S.D.	M	S.D.	
Fabricated Data	31.9	30.3	18.3	24.5	15.7	23.2	468
Adjusted Images	39.0	30.3	23.6	27.0	15.6	22.3	434
False Reporting	46.4	32.2	18.8	23.4	13.1	19.9	482
IRB Noncompliance	35.9	31.7	15.4	23.5	31.1	30.3	476
Reneges on Authorship	69.1	28.8	12.8	19.6	14.9	21.7	474
Parents Dictate Study Groups	28.2	30.8	21.5	31.1	13.7	22.6	421
Adjusted Reporting	43.5	32.4	27.4	29.8	14.0	22.2	455
Authorship to Gain Favor	57.5	33.5	15.0	25.7	12.3	22.6	451
Conflict of Interest	31.1	31.1	35.0	29.4	22.6	25.5	466

Clearly, detection by colleagues is seen as most likely by the respondents, with the highest mean likelihood being *Reneges on Authorship* at 69.1%, which makes sense given that the scenario involves graduate student activities within the department and possibly disgruntled students at that. It is quite interesting that the two lowest average estimates of detection for publishers are in the scenarios involving *Authorship to Gain Favor* and *Reneges on Authorship*. Publishers may be more likely to detect authorship to gain favor in the future if they begin to require documentation from all authors on their specific contributions to manuscripts prior to publication. An alternative consideration is that respondents who rate this scenario as not involving a moral dimension may also expect that there would be no concern for publishers to detect. Perhaps the most important finding here is that respondents on average estimated a probability of under 50% that a colleague would detect one of the FFP situations, and the estimated probabilities are even lower for publishers and administrators/review committees. In fact, the probabilities are much lower overall for publishers and administrators to detect misconduct, likely due to the proximity of colleagues.

The notable exceptions to this are *Conflict of Interest*, which respondents estimated would be detected by publishers on average about 35% of the time and *IRB noncompliance*, which respondents estimated at an average likelihood of 31.1% for administrators, still fairly low, but higher than any other type of situation for publishers or administrators. In fact, respondents occasionally commented in the survey instrument on the Administrator/Committee item, expressing a lack of understanding as to what administrator or research review committee was being referred to in that question. This would suggest there are few administrative or peer research oversight activities in the universities for faculty from psychology and sociology departments, other than the IRB.

Likelihood of sanctions. Similar results are shown below in regard to the seven Sanction items included in the rational choice assessment. Respondents estimated the likelihood from 0-100% that the following consequences would occur if they did take the action depicted in the scenario and the action was then in fact detected: (a) personal sense of shame or guilt; (b) embarrassment due to loss of respect of colleagues in the department; (c) censure in personnel file; (d) censure by research review committee; (e) sanctioned from engaging research for a period of time; (f) dismissal from the university; and (g) criminal arrest and procedure. The results are shown in Table 8, with the first two columns showing the results for what might be seen as “internal” sanctions-those more or less imposed on oneself (a and b), and the remainder as “external” sanctions-those that would be determined and applied by others (c-g).

Table 8. *Perceived Likelihood of Sanctions for Misconduct*

Scenario	Shame		Embarrassment		Censure in file		Censure by committee		Sanctioned from research		Dismissal		Criminal arrest		n
	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
	Fabricated Data	91.0	22.4	89.7	23.0	62.9	36.6	62.9	37.4	45.8	37.8	28.4	32.1	5.2	
Adjusted Images	84.5	27.3	81.6	29.6	41.6	36.1	43.5	37.1	28.2	33.1	15.3	24.3	2.6	9.6	434
False Reporting	83.7	26.9	78.9	30.0	33.0	33.1	30.0	32.2	15.7	25.9	8.8	17.6	1.4	6.8	482
IRB Noncompliance	70.5	35.0	67.3	34.8	41.3	35.6	58.6	35.6	34.6	33.4	8.8	17.5	2.1	6.9	476
Reneges on Authorship	75.7	30.0	68.1	33.6	14.5	22.4	11.1	20.3	3.8	13.0	1.5	6.2	0.3	1.7	474
Parents Dictate Study Groups	70.0	35.7	67.0	36.4	25.4	31.2	30.0	33.9	15.2	24.9	5.8	15.2	0.8	4.5	421
Adjusted Reporting	58.1	38.1	55.3	38.2	14.2	24.5	14.4	25.3	6.7	17.8	2.7	9.7	0.4	3.3	455
Authorship to Gain Favor	29.3	32.0	26.6	31.3	4.6	12.4	4.5	12.5	1.4	6.2	0.7	4.2	0.1	0.4	451
Conflict of Interest	63.2	33.9	55.7	35.9	22.1	29.4	25.7	31.2	11.9	22.6	5.4	14.2	1.8	8.2	466

As shown, the highest estimated likelihood for the internal sanctions of Shame and Embarrassment, on average, is associated with the three FFP scenarios, as might be expected. The others are still fairly high as well, with a better than even chance that respondents would feel both Shame and Embarrassment in all but one of the scenarios, which is again *Authorship to Gain Favor*. Recall that the latter is the scenario that respondents thought had a 58% chance of being detected by colleagues, but less than a quarter of them felt it was wrong (17% of psychologists and 22% of sociologists).

In regard to the “external” sanctions, again the three FFP scenarios have the highest likelihood across the board, with one major exception. Respondents on average anticipated a 59% likelihood of being censured by a research review committee if they were caught engaging in *IRB noncompliance* and 35% likelihood of being sanctioned from engaging in research for a period of time. They even thought there was almost a 9% chance one might be dismissed from the university in that scenario, even though the direct risk of harm to study participants could be described as quite low.

Another notable result is the decreasing probabilities of occurrence overall as the sanctions become more severe. In fact, there seem to be very low probabilities in general of being dismissed from the university or arrest and prosecution for any type of research misconduct. Dismissal is estimated at low probabilities on average even for the FFP situations, although dismissal for fabricating data is estimated at a 28.5% mean likelihood, the highest result.

And finally, it is important to note a very clear pattern with the estimated probabilities for Shame and Embarrassment in comparison to the external sanctions. The former estimates

tend to run much higher for all scenarios than the latter do, suggesting that internal consequences may in fact be much more important in a peer-reviewed research environment than the latter. Certainly they appear to be much more likely at the present time.

Composite variables. In spite of some of the interesting apparent differences in some of the detection and sanction estimates, certain of the items seem to be closely tied to one another, and might therefore be just as appropriately included in subsequent analyses as average composite variables. Upon calculating reliability estimates for likely combinations, the following three composites do appear to work well as composite variables, as shown below in Table 9: (a) a composite Detection score, which is an average of all three detection items for each respondent; (b) a composite of Shame and Embarrassment, hereafter referred to as Internal Sanctions; and (c) a composite referred to as External Sanctions, which includes all of the remaining sanction items, except for Criminal Arrest and Prosecution, for which the probabilities were extremely low, leaving Censure in File, Censure by Committee, Sanctioned from Engaging in Research; and Dismissal.

The reliability estimates (alphas) for each of these three composites are shown in Table 9. The Detection composite seems to be a little less reliable than the other two, but all have acceptable reliability in the various scenarios. One exception might be *Reneges on Authorship*, which is more likely to be detected by a colleague than others, as shown previously. Comparisons of means for the three composites are shown in *Figure 4*. The results of course parallel what was shown above for the individual detection and sanction items. Recall that respondents were instructed to estimate the likelihood of the sanctions in the event detection did occur.

Table 9. *Reliability Co-efficients for Variable Composites*

Scenario	Detection	Internal Sanctions	External Sanctions
Fabricated Data	0.84	0.83	0.89
Adjusted Images	0.76	0.93	0.90
False Reporting	0.68	0.86	0.89
IRB Noncompliance	0.73	0.89	0.82
Reneges on Authorship	0.61	0.85	0.83
Parents Dictate Study Groups	0.77	0.95	0.87
Adjusted Reporting	0.65	0.95	0.88
Authorship to Gain Favor	0.66	0.94	0.79
Conflict of Interest	0.78	0.91	0.87

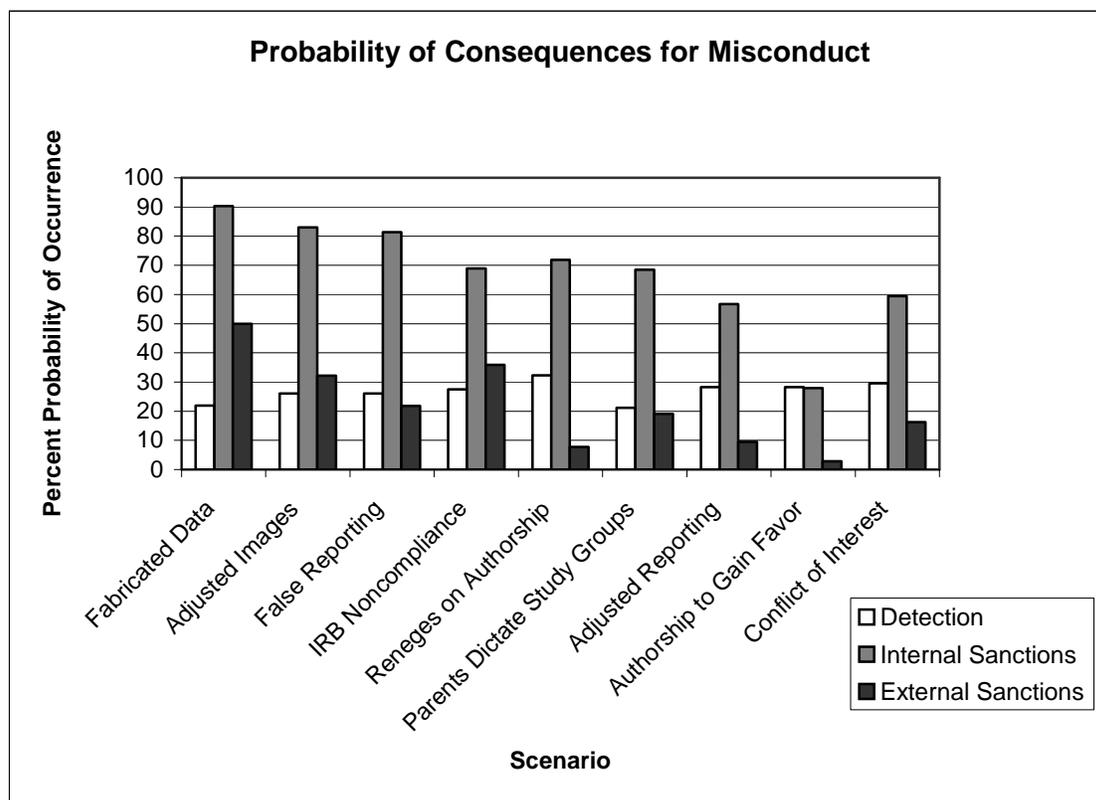


Figure 4. Probability of Consequences for Misconduct

Regression Model

The results of regression analyses for each of the nine scenarios are shown in Table 10. Results for the FFP scenarios are shown first, followed by those for the QRP scenarios. As can be seen, all of the co-efficients for Moral Judgment are highly significant ($p \leq .001$), indicating that a judgment that an action is morally wrong is an important predictor for research misconduct. In the scenario describing an unreported *Conflict of Interest*, every point increase in the Likert scale towards a judgment of wrongness appears to reduce the likelihood of misconduct by 14.08 points. The lowest but still significant effect can be seen for the *IRB Noncompliance* scenario, in which a judgment of wrongness reduces the likelihood of misconduct by about 4.23 points.

The Detection composite does not appear to consistently predict the likelihood of misconduct, although a very small effect is significant for *IRB Noncompliance* and *Reneges on Authorship*. Nor does the External Sanction composite typically predict misconduct, although a couple of these co-efficients were also significant. However, Internal Sanctions (the Shame and Embarrassment composite), does appear to be a consistent predictor, as the co-efficients for Internal Sanctions are significant across all scenarios. Misconduct becomes less likely as individuals expect to feel more shame and embarrassment if a given action were to be detected. Moral Judgment and Internal Sanctions are probably tied together – people are more likely to feel shame when doing things they judge as morally wrong.

Looking at the characteristics of the sample, one can see that the apparent small differences previously shown between sociologists and psychologists appear to be borne out in the regression. In seven of the scenarios, sociologists appear to be approximately 3-6

Table 10. *Estimates of Probability of Misconduct*

Variable	FFP Scenarios			QRP Scenarios					
	Fabricated Data	Adjusted Images	False Reporting	IRB Non-compliance	Reneges on Authorship	Parents Dictate Study Groups	Adjusted Reporting	Authorship to Gain Favor	Conflict of Interest
Constant	33.42	52.77	54.94	29.51	49.22	42.32	41.35	81.65	75.92
Moral Judgment	-5.51 ***	-10.01 ***	-7.08 ***	-4.23 ***	-7.69 ***	-5.14 ***	-7.21 ***	-12.40 ***	-14.08 ***
Detection	0.04	0.02	0.02	0.10 *	0.09 *	0.01	-0.02	0.06	-0.02
Internal Sanctions	-0.12 **	-0.10 **	-0.18 ***	-0.16 ***	-0.14 ***	-0.24 ***	-0.18 ***	-0.14 *	-0.08 *
External Sanctions	0.00	0.06 *	-0.01	-0.04	0.03	0.06	0.19 **	0.27	0.04
Sociology	3.34 **	3.10 *	3.61 **	5.37 **	3.69 **	6.14 **	0.09	-2.75	6.21 **
Associate Professor	-0.74	0.64	-1.48	-6.20 *	-3.59	-0.68	4.19	-5.24	1.45
Full Professor	-0.72	-0.16	-5.10 **	-1.48	-4.50 *	0.96	-0.29	-9.31 **	-0.93
Administrator	2.70	1.97	-4.93	-2.37	-3.83	-0.95	7.71	-14.46	-1.10
Non TT Faculty	-2.38	-3.19	-5.06	-3.83	-5.45	4.54	-4.14	-8.87	-1.96
Other Position	-4.42	-1.54	-9.52	6.17	-3.65	-10.66	-3.49	0.75	5.30
Male	0.87	1.69	-0.16	4.41 *	2.56	0.69	2.16	-1.29	0.83
Black	3.61	1.32	6.99 *	-0.26	2.35	5.56	-1.26	3.41	-3.99
Hispanic	-1.02	3.37	4.43	1.84	-2.05	-3.66	5.45	-1.25	0.84
Asian	0.55	2.20	15.47 **	9.13	8.30	1.89	10.14	-1.21	18.18 *
Other	2.88	18.09	11.42	6.84	6.02	-3.99	-3.92	14.40	40.71 *
% Time Spent in Research	0.09 **	0.03	0.01	0.06	-0.01	-0.02	0.09	-0.02	0.02
Adj. R ²	0.20	0.38	0.38	0.20	0.32	0.34	0.36	0.30	0.39

*p<.05. **p<.01. ***p<.001.

points more likely to engage in misconduct than the psychologists. The exceptions were *Adjusted Reporting* and *Authorship to Gain Favor*, which were not significant.

When it comes to academic position, there are three scenarios where full professors are less likely to engage in the misconduct than the referent group of assistant professors: *False Reporting*, *Reneges on Authorship*, and *Authorship to Gain Favor*. The results for the latter two are consistent with how academia is structured. Senior faculty are under less pressure to get publications out, and first author publications particularly, and they are much less likely to need to please others who might seek a “courtesy” listing as an author on a publication.

Likelihood of misconduct is only different between males and females in one scenario, *IRB noncompliance*. In that scenario, male respondents are about 4.4 percentage points more likely on average to *not* report the sample change to the IRB than females, under those circumstances. But any apparent differences in the other scenarios are not statistically significant. In a couple of scenarios, we can see large effect sizes related to Race, especially Asians compared to Whites, and Other compared to Whites. However, there were only two Others in the sample, and seven Asian/Pacific Islanders, and so the results may be artifacts of the low sample sizes. Finally, the results pertaining to percent time spent in research were significant in only one of the scenarios, and in that one, the effect appear to be small.

Chapter 5. Summary and Conclusions

The purpose of this research was to investigate the phenomenon of academic research misconduct from the perspective of rational choice theory and the Rest, et al., model of moral decision-making. Drawing on a national sample of university sociologists and psychologists, respondent assessment of vignettes was used to examine the likelihood that faculty would engage in the hypothetical misbehaviors depicted and to what extent their perceptions in that regard would be predicted by moral awareness, moral judgments, and expectations of consequences. Analysis of the data has generated the following principal findings:

1. The likelihood of the most serious misbehaviors (Fabrication, Falsification, and Plagiarism) generally was low, and the likelihood of faculty engaging in Questionable Research Practices was quite variable.
2. Moral judgment in regard to a given situation was a consistently strong predictor of the perceived likelihood of misconduct.
3. Anticipated internal sanctions such as shame and embarrassment were shown to be a consistent factor in the likelihood of misconduct, but perceptions of the likelihood and severity of external sanctions did not typically have a direct independent effect.
4. Field and experience were a factor in research misconduct in some cases. Field was a consistently small predictor of misconduct, with the sociologists scoring slightly higher than the psychologists in virtually all of the scenarios. The likelihood of misconduct was lower for full professors than assistant professors on the authorship-related scenarios.

The results of this study are largely consistent with previous estimates of the prevalence of research misconduct among faculty (Fanelli, 2009). Fabrication and

falsification, in particular, appear to be fairly rare occurrences, while less serious misbehaviors are probably widespread. Surprisingly, external sanctions in general were not as important as an independent factor as shown in other research (Tibbetts, 1997, 1999) but future analyses may uncover an interaction effect between moral judgments and potential sanctions that fits with what others have found for other types of misconduct (Paternoster & Simpson, 1996).

The findings in regard to field effects add to the current research by providing estimates of likely misconduct among sociologists specifically while offering additional information on the likelihood for psychologists. As for experience, these results were not as strong as others have found (M. S. Anderson, et al., 1994; Martinson, et al., 2006), but in those scenarios where this study did reveal significant effects for academic position, the results make intuitive sense, since assistant professors are much more likely to be sensitive to publication pressures and the authorship dilemmas that attend them. Full professors would not likely be under enough pressure to renege on a promise of lead authorship to graduate students, and being the senior faculty, they themselves would not likely feel under any obligation to provide courtesy authorship to professors more senior than themselves.

Caution must be exercised in interpreting the results due to several factors. First and foremost, this study was not measuring actual misconduct, only participant perceptions of the likelihood they might engage in misconduct in various situations. The possibility of respondent bias is also present, since this is a sensitive topic, and participants may not be responding with complete honesty, either out of concern for what others might think should they somehow become aware of their responses or simply out of a desire to see themselves as moral persons. Finally, the lack of precision in some of the measures may have led to

variability in how participants responded that would not otherwise have been present. It is possible that respondents did not adequately distinguish between what was meant by a moral dimension being present and a moral judgment that an action was wrong. Similarly, the shame and embarrassment items were very crude, and very likely conflated perceptions of the various moral emotions, especially shame, embarrassment, guilt, remorse, and regret.

Even so, the findings from this study have some very interesting implications. For example, education and training efforts on campus that primarily work toward raising awareness of the rules and the consequences for breaking them might be better off shifting to an exploration of the moral issues involved in conducting research. Given the difficulty in monitoring the myriad details involved in research activities, enforcement of such rules and consequences is challenging at best, and thus remain reliant on individual researchers to make good decisions as they proceed through their daily work lives. Scientific norms of disinterestedness and organized skepticism (Merton, 1942) were grounded in this understanding, but now are being seriously challenged by the pressures to obtain funding and publish interesting results (M. J. Anderson, Ronning, De Vries, & Martinson, 2010). Rather than devising new and ever more elaborate methods for detecting misconduct, perhaps focusing on peer support and researchers' passion for doing good science would be more effective in reducing the likelihood of questionable research practices, those types of misconduct that are most prevalent, most difficult to consistently monitor, and most amenable, arguably, to correction. Notwithstanding the current state of higher education and government, the financial challenges and shifting emphasis to business models, accountability, and consumerism, perhaps the most significant gift we could offer faculty that would improve integrity in research is time – time to think about their research, reflect on the

adequacy and appropriateness of their methods, and communicate with colleagues and mentors about the process as it unfolds.

On the other hand, one area that might benefit from more of an instrumental approach is the IRB. It was interesting to note how many of the respondents found the IRB scenario to be morally wrong, given the low probability of actual harm to study participants in that scenario (using a consent form approved for one youth sample for another, slightly older one, without informing the IRB). One can speculate how the respondents' perceptions of this scenario might have been affected by the now ubiquitous presence of IRBs on campus, and the role that they play in promoting an overall system of research integrity, such that any violations of IRB requirements may seem morally wrong. Regardless, this study would suggest that most researchers who are aware of the moral implications of their interactions with study participants are likely to do the right thing on their own without concern for sanctions. But for those who do not perceive every IRB rule as a moral imperative, an expectation of detection and sanctions might play a role in preventing rule-breaking. In this sense, post-approval monitoring systems, or other mechanisms for increasing the perception of detection and sanctions for misbehavior, can be useful in maintaining an efficient system of rule-following as well as catching those few bad apples that may cause real harm to participants.

Perhaps the most obvious and yet important implication of this study is that the increasingly competitive nature of research funding and publication systems should be expected to increase the likelihood of misconduct, both at the more serious level and in regard to QRP's. In spite of scientific norms, passion for knowledge, and a moral compass, researchers are at heart still human beings who need to feel valued by their peers and

rewarded for their efforts. To the extent that our systems become so competitive that fewer and fewer can succeed, we will not only lose some of our best people but have less and less confidence in the integrity of research that is performed.

To forestall this, additional research must be undertaken to fully understand the interaction between moral and rational factors in decision-making. Future research should broaden the sample to include other fields and better measure emotional states and possibly other “internal” sanctions. In addition, analyses are needed that can aggregate the data across scenarios, to better answer the questions comparing FFP versus QRP misconduct. Finally, a valuable adjustment to this study design would be to integrate environmental variables that have shown promise in previous studies, including perceptions of distributive justice, observation of misconduct in the past, and mentoring and peer support.

Appendix

SURVEY ON DECISION-MAKING IN RESEARCH

Instructions for Section I: Below you will find three different vignettes or “scenarios” involving various situations that researchers encounter on a day-to-day basis. Each scenario is accompanied by three items that elaborate on the circumstances. The questions after each item invite you to estimate what the likelihood is that you might take the same action under the same circumstances. You are also requested to make an assessment of the situation, such as the extent to which an ethical issue may be involved, if the action taken would be appropriate, and what the consequences would likely be. The items represent a mix of possible situations and there are no right or wrong answers. Please just share your own assessment of the situation, which will help us to understand how researchers actually address these kinds of issues in their daily work.

SECTION I. ANALYSIS OF RESEARCH SCENARIOS

SCENARIO 1. Dr. Cedar, a young developmental psychologist, obtained an R01 Research Grant from the National Institute of Child Health and Human Development to study aggression in elementary school children. Cedar suspects that some children with a certain genetic makeup will be especially susceptible to the effects of television violence. Part of the project requires obtaining a cheek swab for DNA analysis, but interviewing and observing children in the classroom constitutes the major effort. Cedar is anxious to get results from this study published as soon as possible to support an upcoming tenure review.

ITEM 1A. After collecting data for one semester, Dr. Cedar becomes concerned that the preliminary results from the study are not promising and decides to expand the sample population to include adolescents. Cedar feels frustrated, however, that the study may require additional IRB review due to the change in sample, and therefore decides to proceed using the consent documents already approved for the younger children without bringing the sample change to the attention of the IRB.

1. In regard to Item 1A above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.] _____%

2. To what extent does the situation described in Item 1A include a moral aspect or dimension? “Moral dimension” means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all **1** **2** **3** **4** **5** Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong **1** **2** **3** **4** **5** Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____%
- b. A publisher when the article is submitted for peer review? _____%
- c. A university administrator or research oversight committee? _____%

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator *did* become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____%
- b. Embarrassment due to lost respect of colleagues in the department _____%
- c. Censure in personnel file _____%
- d. Censure by research review committee _____%
- e. Sanctioned from engaging in research for period of time _____%
- f. Dismissal from the university _____%
- g. Criminal arrest and prosecution _____%

ITEM 1B. *In the spring, Dr. Cedar begins analysis of the results from the adolescent sample and finds that the pattern largely supports the expected findings. During the analysis, however, Cedar spots an anomaly in the data and after talking to the research assistants, believes an error occurred in the way the results were recorded during the third observation for each participant. It is not possible to repeat the observations as the third in the sequence and in any case additional observations for the entire sample would take too much time. Throwing those observations out, however, renders all of the results non-significant. Cedar decides to create scores for the third observations, using his best guess as to what they would have been had they been carried out correctly, and then use those data in the analysis. The results are now largely significant and Cedar proceeds to draft the initial article.*

1. In regard to Item 1B above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.] _____%

2. To what extent does the situation described in Item 1B include a moral aspect or dimension? “Moral dimension” means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all **1** **2** **3** **4** **5** Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong **1** **2** **3** **4** **5** Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____%
- b. A publisher when the article is submitted for peer review? _____%
- c. A university administrator or research oversight committee? _____%

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator *did* become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____%

- b. Embarrassment due to lost respect of colleagues in the department _____%
- c. Censure in personnel file _____%
- d. Censure by research review committee _____%
- e. Sanctioned from engaging in research for period of time _____%
- f. Dismissal from the university _____%
- g. Criminal arrest and prosecution _____%

ITEM 1C. Cedar's graduate students are currently writing manuscripts for projects they completed as extensions of the primary study. Cedar has already implied that the graduate students will be first authors on their respective projects, but reconsiders, given the pressure for additional first-author publications for the upcoming review. Cedar decides to remain as first author and list the graduate students as second and subsequent authors.

1. In regard to Item 1C above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]

_____%

2. To what extent does the situation described in Item 1C include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all 1 2 3 4 5 Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong 1 2 3 4 5 Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____%
- b. A publisher when the article is submitted for peer review? _____%
- c. A university administrator or research oversight committee? _____%

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator did become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____%
- b. Embarrassment due to lost respect of colleagues in the department _____%
- c. Censure in personnel file _____%
- d. Censure by research review committee _____%
- e. Sanctioned from engaging in research for period of time _____%
- f. Dismissal from the university _____%
- g. Criminal arrest and prosecution _____%

SCENARIO 2. Dr. Daniels has earned substantial prestige as a young researcher in the field of behavioral economics. Daniels' program of research is focused on the future discounting of delayed benefits. Currently Daniels is studying the effects of self-payment for end-of-semester grades in high school students. Students are to be given 0, 15, or 30 dollars to use now in any way they like, or to deposit in a "lock box" to be redeemed only after receiving a "B" or better in their required geometry course. Daniels is hoping to be ready for tenure review next year.

ITEM 2A. Along with a consent form, Daniels has sent a brief description of the study home with students. When the forms are returned, although signed, a few contain notes from the parents saying that they agree only if their child is included in one of the monetary groups, but not if their child is in the no-payment group. Even more of the students' assent agreements carry this stipulation. Daniels needs all the subjects possible, and so decides to satisfy as many requests as possible, and try to make up the difference at the next school, where hopefully the problem can be lessened.

1. In regard to Item 2A above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]

_____ %

2. To what extent does the situation described in Item 2A include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all **1** **2** **3** **4** **5** Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong **1** **2** **3** **4** **5** Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____ %
 b. A publisher when the article is submitted for peer review? _____ %
 c. A university administrator or research oversight committee? _____ %

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator *did* become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____ %
 b. Embarrassment due to lost respect of colleagues in the department _____ %
 c. Censure in personnel file _____ %
 d. Censure by research review committee _____ %
 e. Sanctioned from engaging in research for period of time _____ %
 f. Dismissal from the university _____ %
 g. Criminal arrest and prosecution _____ %

ITEM 2B. Daniels has nearly finished the study and an initial report of the hypotheses and results is being prepared for the funder. Daniels' graduate student, Lauren, has been assigned the job of developing the first draft of the results section. Daniels instructs Lauren to gloss over the striking SES and ethnicity results that were found, because they might be interpreted as greed and impulsivity. Lauren, on the other hand, maintains that a full account of the key findings should be given. Daniels explains to Lauren that the main experimental question was about incentive effects, and that is all she should describe, leaving out the interactions with class and money.

1. In regard to Item 2B above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]

_____ %

2. To what extent does the situation described in Item 2B include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all **1** **2** **3** **4** **5** Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong **1** **2** **3** **4** **5** Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____ %
 b. A publisher when the article is submitted for peer review? _____ %
 c. A university administrator or research oversight committee? _____ %

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator did become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____ %
 b. Embarrassment due to lost respect of colleagues in the department _____ %
 c. Censure in personnel file _____ %
 d. Censure by research review committee _____ %
 e. Sanctioned from engaging in research for period of time _____ %
 f. Dismissal from the university _____ %
 g. Criminal arrest and prosecution _____ %

ITEM 2C. Daniels has been hard at work writing up the high school lock-box data, and it occurs to him that the results are more than strong enough to merit a neuro-economic analysis of the effect. It could show how his manipulation might reshape a student's fMRI index of future academic performance and, by implication, the change in his or her subjective economic value. A second phase of the study was therefore initiated, in which serial fMRIs scans were taken while new student participants were asked to make their lock-box decisions. Daniels watched as the first round of images appeared, and nothing looked especially promising. Brain metabolic activity seemed more or less uniformly distributed across all conditions. Daniels' post-doc noted, however, that new digital technology would allow them to adjust the images a bit to ensure the results appeared more interesting. Daniels is concerned the funding support for his research will dry up if he does not continue to produce results, and so agrees provided the adjustments are minor and cannot easily be detected.

1. In regard to Item 2C above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]

_____ %

2. To what extent does the situation described in Item 2C include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all 1 2 3 4 5 Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong 1 2 3 4 5 Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____ %
 b. A publisher when the article is submitted for peer review? _____ %
 c. A university administrator or research oversight committee? _____ %

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator did become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____ %
 b. Embarrassment due to lost respect of colleagues in the department _____ %
 c. Censure in personnel file _____ %
 d. Censure by research review committee _____ %
 e. Sanctioned from engaging in research for period of time _____ %
 f. Dismissal from the university _____ %
 g. Criminal arrest and prosecution _____ %

SCENARIO 3. Dr. Channing is a young American anthropologist studying agricultural practices of the Mofu people of Cameroon, Africa. Due to the demanding nature of this project, which requires frequent travel to Cameroon and lengthy periods of data collection, Channing has not published any of the findings yet, although one paper is under review. The delay has been unavoidable, but tenure review is only a year away, so the pressure to publish from this project is building.

ITEM 3A. *Channing has hurried to prepare a manuscript for publication. A collaborator phones to say that a senior department member, Dr. Foster, has been hinting that he should be listed as a co-author. The collaborator points out a few advantages of including him. Although Foster did not directly contribute to the study design, he did provide useful advice regarding data analysis. Channing sees that including him as an author might increase the paper's prestige, and thus decides to go ahead and include Foster last in the list of authors; it costs nothing, and can only add prestige and promote good relations with Foster—something needed for the upcoming tenure review.*

1. In regard to Item 3A above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]

_____ %

2. To what extent does the situation described in Item 3A include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all **1** **2** **3** **4** **5** Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong **1** **2** **3** **4** **5** Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____ %
 b. A publisher when the article is submitted for peer review? _____ %
 c. A university administrator or research oversight committee? _____ %

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator *did* become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____ %
 b. Embarrassment due to lost respect of colleagues in the department _____ %
 c. Censure in personnel file _____ %
 d. Censure by research review committee _____ %
 e. Sanctioned from engaging in research for period of time _____ %
 f. Dismissal from the university _____ %
 g. Criminal arrest and prosecution _____ %

ITEM 3B. *The paper is accepted pending minor revisions and Wilson, one of Channing's graduate students, reanalyzes data from the Mofu project for his Master's thesis. The student finds that in Channing's haste to get the data analyzed, some of the agricultural plots were omitted. When included, the important differences are reduced to marginal significance. The pressure to get the paper out is now overwhelming, and so Channing decides to keep the results section as is, but emphasize in a revision that the readers should be cautious about interpretations because more work on this topic is needed.*

1. In regard to Item 3B above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]

_____ %

2. To what extent does the situation described in Item 3B include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all **1** **2** **3** **4** **5** Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong **1** **2** **3** **4** **5** Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____ %
 b. A publisher when the article is submitted for peer review? _____ %
 c. A university administrator or research oversight committee? _____ %

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator *did* become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____ %
 b. Embarrassment due to lost respect of colleagues in the department _____ %
 c. Censure in personnel file _____ %
 d. Censure by research review committee _____ %
 e. Sanctioned from engaging in research for period of time _____ %
 f. Dismissal from the university _____ %
 g. Criminal arrest and prosecution _____ %

ITEM 3C. *Channing is collaborating with a senior researcher on a grant proposal to the International Fund for Agricultural Development (IFAD). She notices that a consulting agreement with an agricultural manufacturer is not disclosed in his draft of the application. She guesses that disclosing this fact might compromise approval by IFAD and supposes that the principal investigator (PI), who knows the ins and outs of the application process, may have purposefully omitted the information. Channing is hesitant to question her collaborator about this potentially sensitive subject, and finally decides to proofread and modify technical details of the proposal as needed, but respect the PI's decision about listing his ties to industry.*

1. In regard to Item 3C above, what are the chances that you would do what the hypothetical researcher did under the same circumstances? [Using a scale of 0% (no chance) to 100% (certain), rate how likely it is that you would choose the same course of action.]

_____ %

2. To what extent does the situation described in Item 3C include a moral aspect or dimension? "Moral dimension" means that the action taken has an element of ethical correctness, e.g., the action can be considered more or less right or wrong in a moral sense. [Circle the number corresponding to your response.]

Moral dimension not evident at all **1** **2** **3** **4** **5** Moral dimension clearly present

3. If the situation does include a moral dimension, to what extent would you say the action taken was morally wrong (if at all)? [Circle the number corresponding to your response. If there was no moral dimension to the situation, check Not Applicable here: _____]

Not at all wrong **1** **2** **3** **4** **5** Very wrong

4. If you were the researcher in this scenario, and assuming you did not discuss it with anyone else, what is the probability that the action would become known to the following: [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. A colleague in the department? _____ %
 b. The funder when the grant is submitted for review? _____ %
 c. A university administrator or research oversight committee? _____ %

5. If you were the researcher in this scenario, and a colleague, publisher, and/or administrator *did* become aware of the action, what is the probability that you would experience the following outcomes, if any? [Write in a number between 0% (no chance) and 100% (certain) for each.]

- a. Personal sense of shame or guilt _____ %
 b. Embarrassment due to lost respect of colleagues in the department _____ %
 c. Censure in personnel file _____ %
 d. Censure by research review committee _____ %
 e. Sanctioned from engaging in research for period of time _____ %
 f. Dismissal from the university _____ %
 g. Criminal arrest and prosecution _____ %

SECTION II. BACKGROUND QUESTIONS

Ethics Experiences

Have you ever, in graduate school or as a faculty member, observed a colleague engaging in a research or scholarship practice that some might consider ethically questionable?

Yes ____ No ____ Not sure ____

Please check all that apply or fill in the blank as appropriate. Please note that demographics will never be reported in a way that could be combined to identify particular individuals.

1. Gender:

Female ____ Male ____

2. Race/ethnicity – which category best describes you:

White/Caucasian ____ Black/African-American ____ Hispanic or Latino ____

Asian/Pacific Islander ____ Other (specify): _____

3. Current academic position:

Tenure track assistant professor ____

Tenured associate professor ____

Tenured professor ____

Administrator ____

Non tenure track faculty ____

Other (specify): _____

4. Estimated percent of full-time effort on average devoted to research activities over the past year: _____%
(e.g., If you normally work 40+ hours/week, and spend half of that on research, enter 50%.)

5. Field/discipline: Psychology ____ Sociology ____ Other (specify): _____

6. Approximate **total** undergraduate and graduate enrollment at your institution: _____

7. Did you receive your graduate education/training in the U.S.? Yes ____ No ____

Please provide any comments or suggestions you may have regarding this survey instrument or process:

Thank you very much for taking the time to participate in this research!

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